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A Review of the Hardware, Iron and Metal Trades.

Published every Thursday Morning by David Williams, Nos. 96, 98, 100 & 102 Reade St., New York.

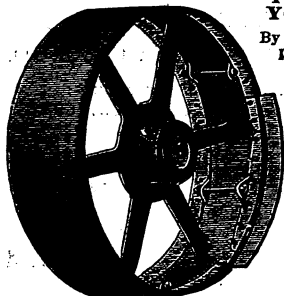
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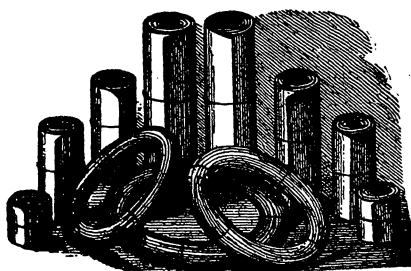
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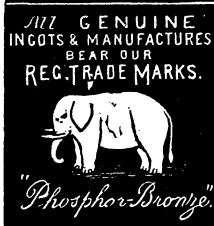
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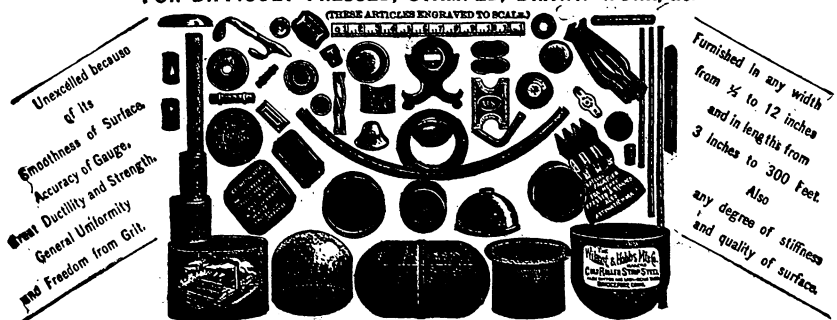
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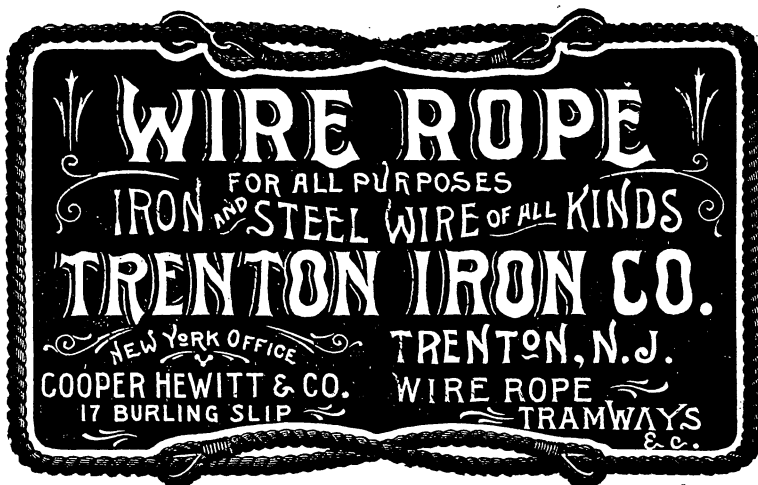
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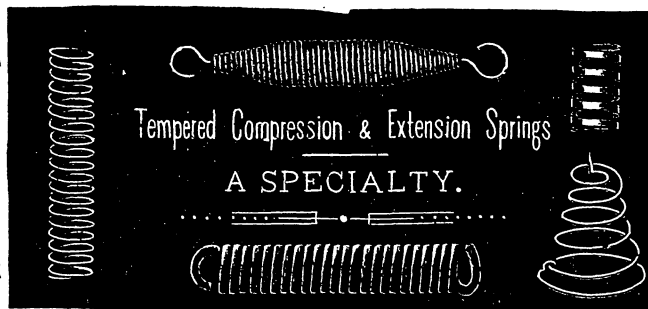


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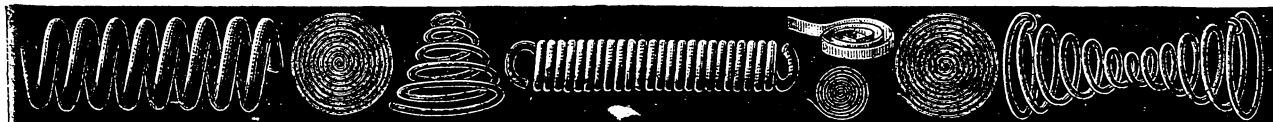
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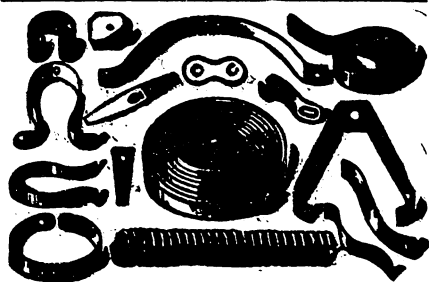
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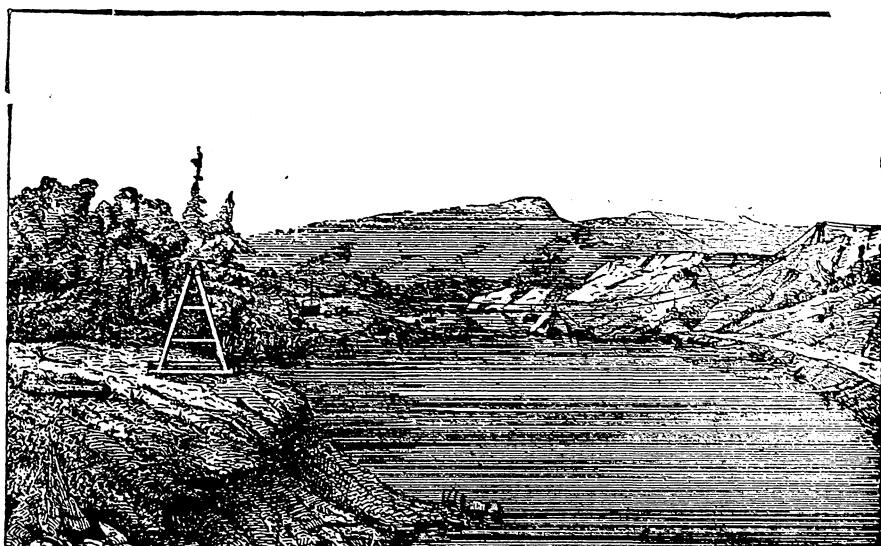


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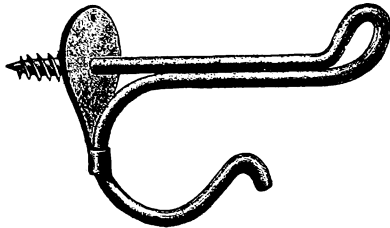


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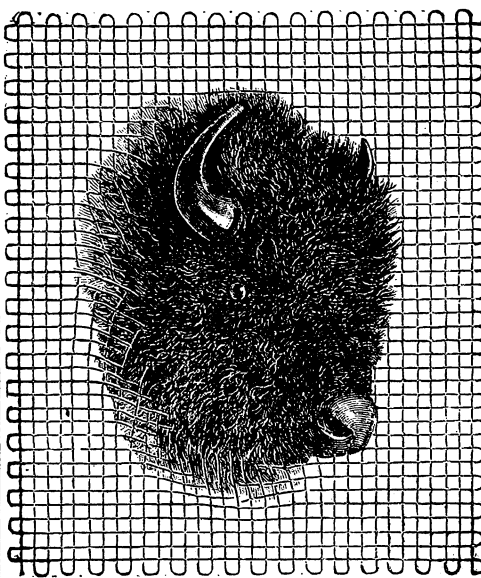
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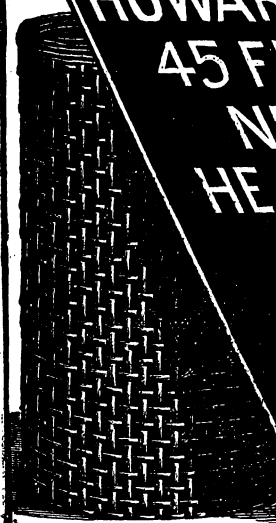
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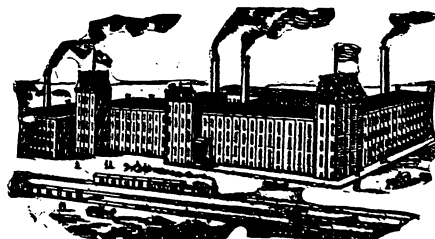


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Every roll wrapped in Pink Paper
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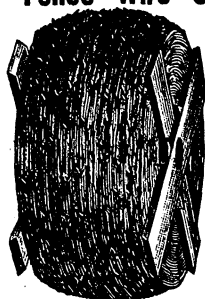
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STEEL WIRE RODS,
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Fence Wire Staples, Galvanized Wire Ornamental
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 W. D. MEIGHAN, 111 Water Street, New York City.

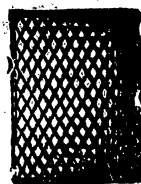


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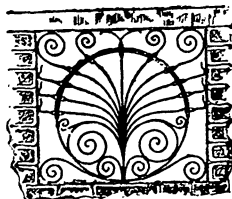
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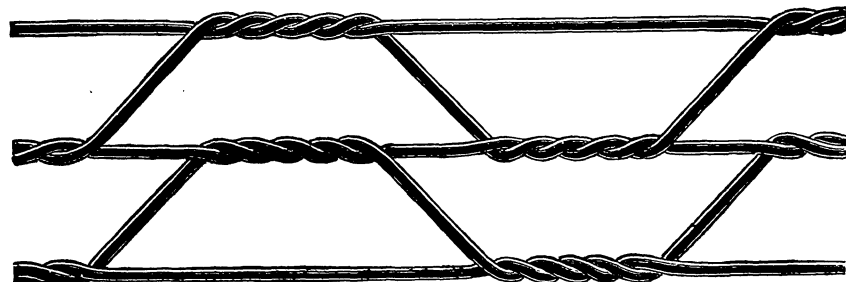


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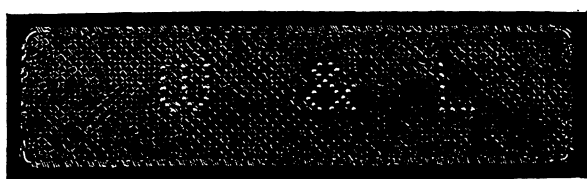
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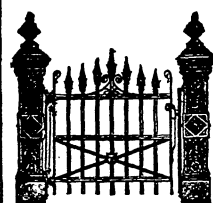
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Iron Stairs and Jail
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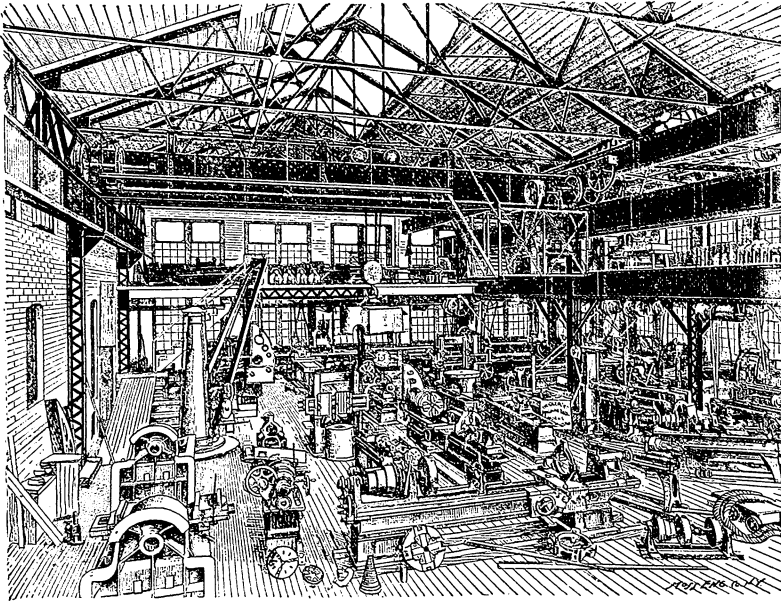
MOSELEY IRON BRIDGE AND ROOF CO.,

Office, 5 Dey Street, Room 13, NEW YORK.

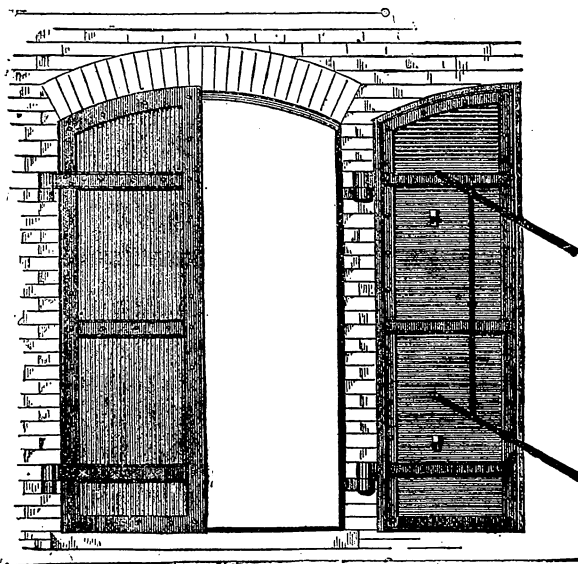
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Engineers, Architects and Builders in Iron and Steel.

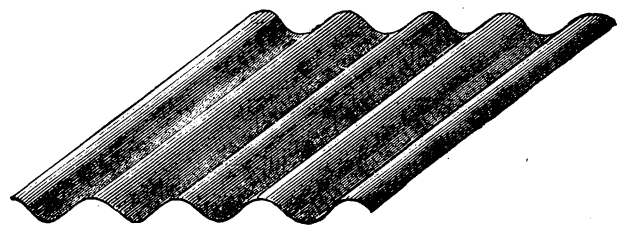
Office and Works, No. 5 Railroad Avenue,
EAST BERLIN, CONN.



This illustration is taken direct from a photograph and shows the interior of a machine shop designed and built by us for the Bridgeport Machine Tool Co., at Bridgeport, Conn. The building consists of two parts, each 40 ft. in width. That shown in the immediate foreground being one story high for erecting room, while that portion of the building shown on the right is two stories high—light work being done on the second floor.



The above illustration shows our regular pattern of Double thickness Corrugated iron shutters, composed of two plates of corrugated iron (with corrugations running at right angles to each other) built into a heavy angle iron frame, thoroughly supported by bands, flanges, hinges and latch bars, forming a fire proof shutter which will not warp, twist or bend when exposed to the most severe heats.



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TO WITHSTAND ACTION OF ACIDULATED WATERS WITH Hardness and Life of Best Steel.

LOW PRICES

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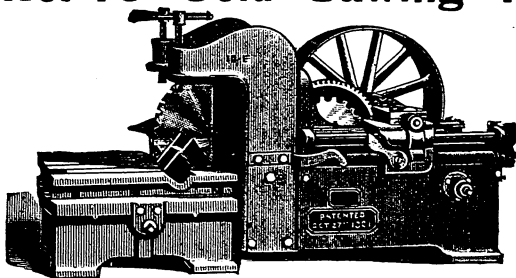
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Saves
Time,
Power,
Temper,
Labor.

Gives
True,
Clean,
Rapid
Work.



Cuts
Noiselessly,
Keenly,
Easily,
Inexpensively.

For
General
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Work.

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Needs No Paint.

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PROTECT

Your Offices, Stores and Warehouses from fire and burglars by using

Metallic Doors and Shutters

Made from wood and covered with iron or steel, rendering them stiff and preventing warping in case of fire.
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Made to fit any size opening.

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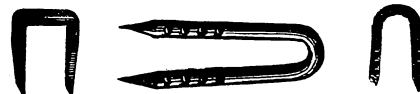
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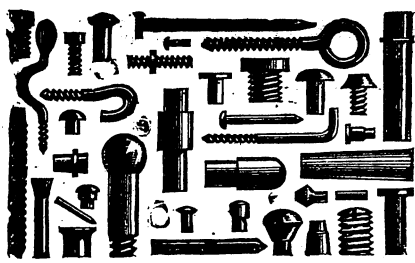
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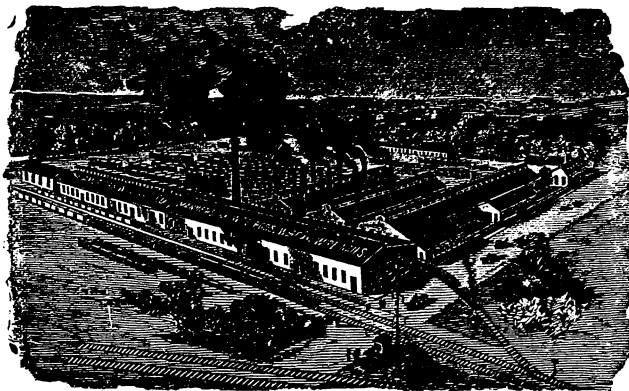


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STUDS, PINS, SCREWS, &C.,

For Manufacturers of Light Hardware.

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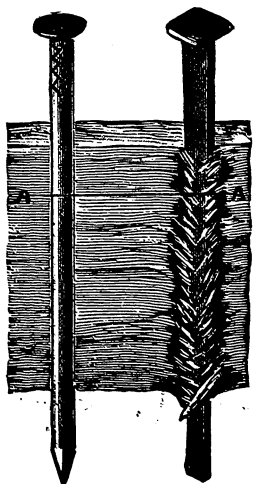
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Office and Works,

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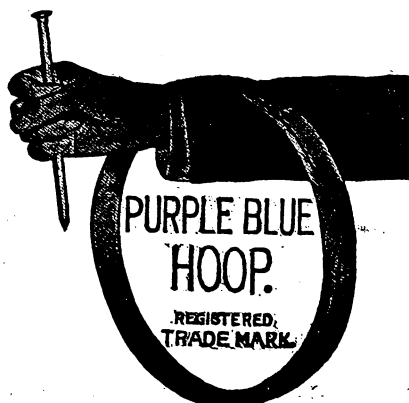
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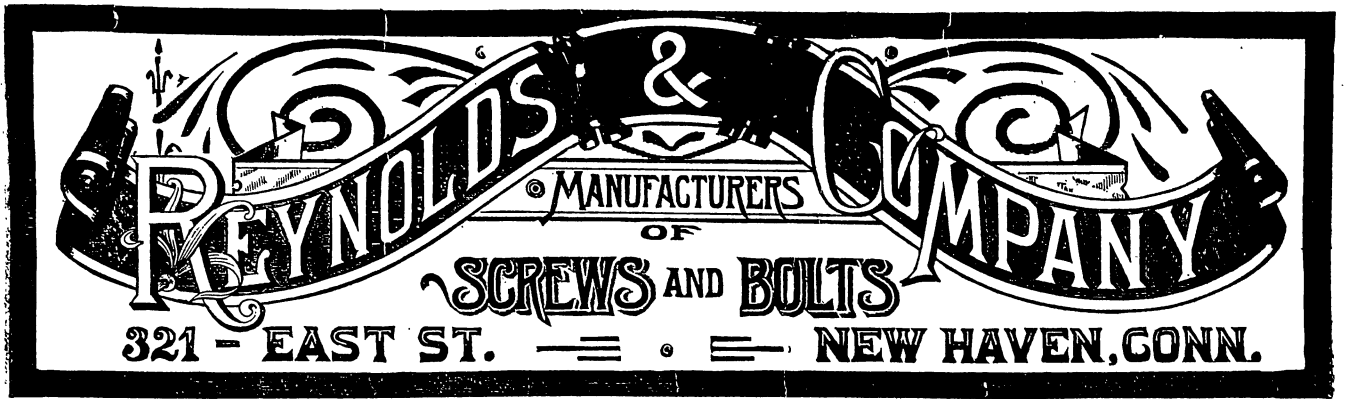
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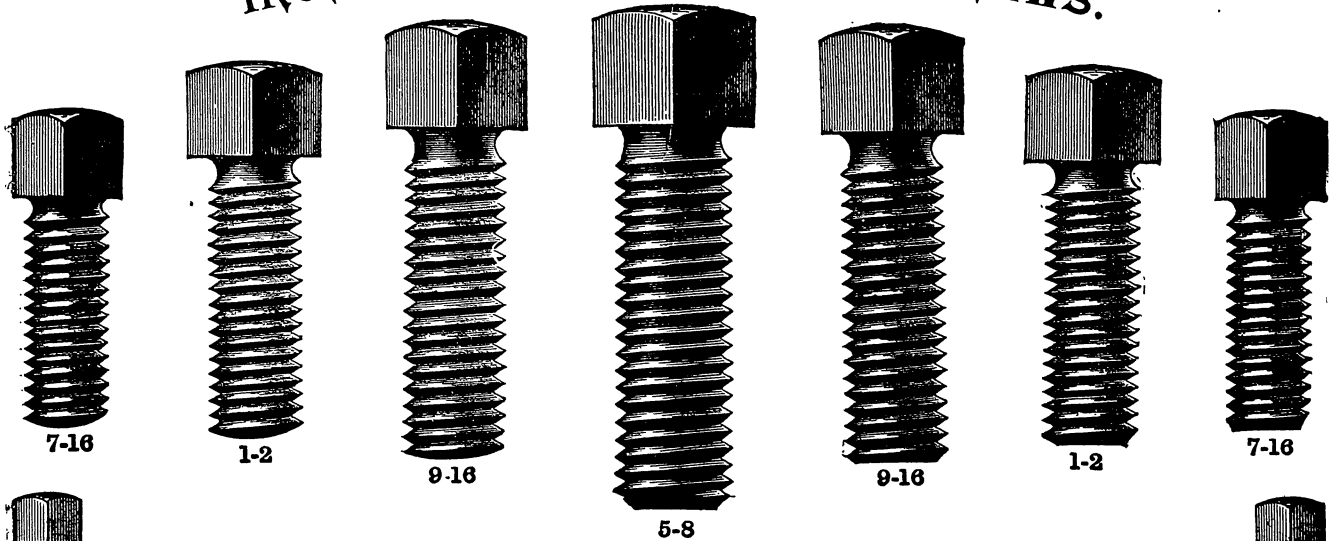


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Manufacturer of
Brass, Iron, Steel and German Silver
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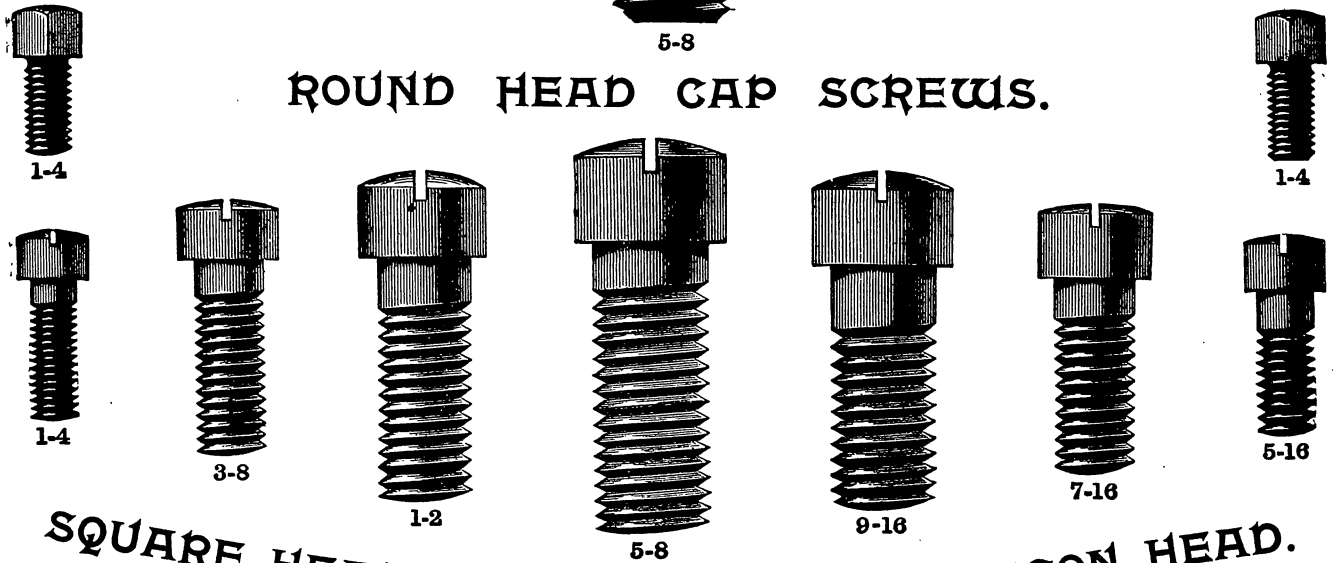
Voltaic Electricity. By T. F. Treglohan. 40 cents. For sale by DAVID WILLIAMS, Publisher and Bookseller, 96-102 Reade St., New York.



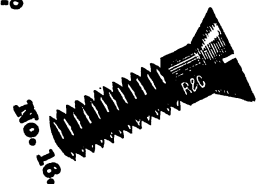
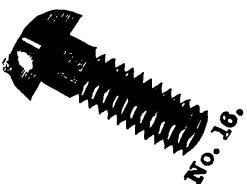
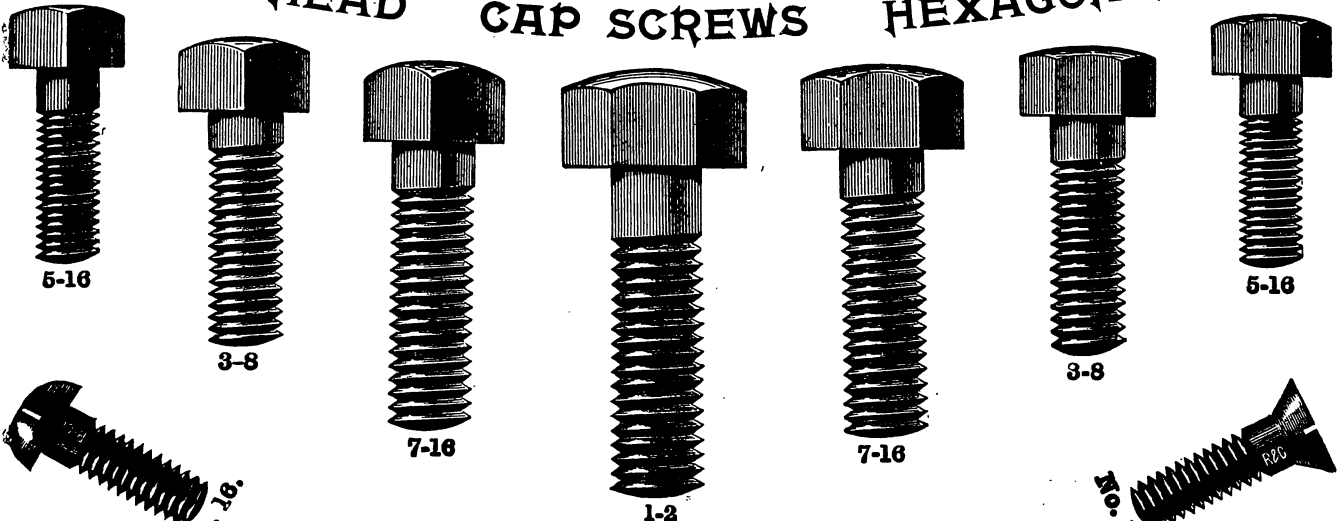
IRON AND STEEL SET SCREWS.



ROUND HEAD CAP SCREWS.



SQUARE HEAD CAP SCREWS HEXAGON HEAD.



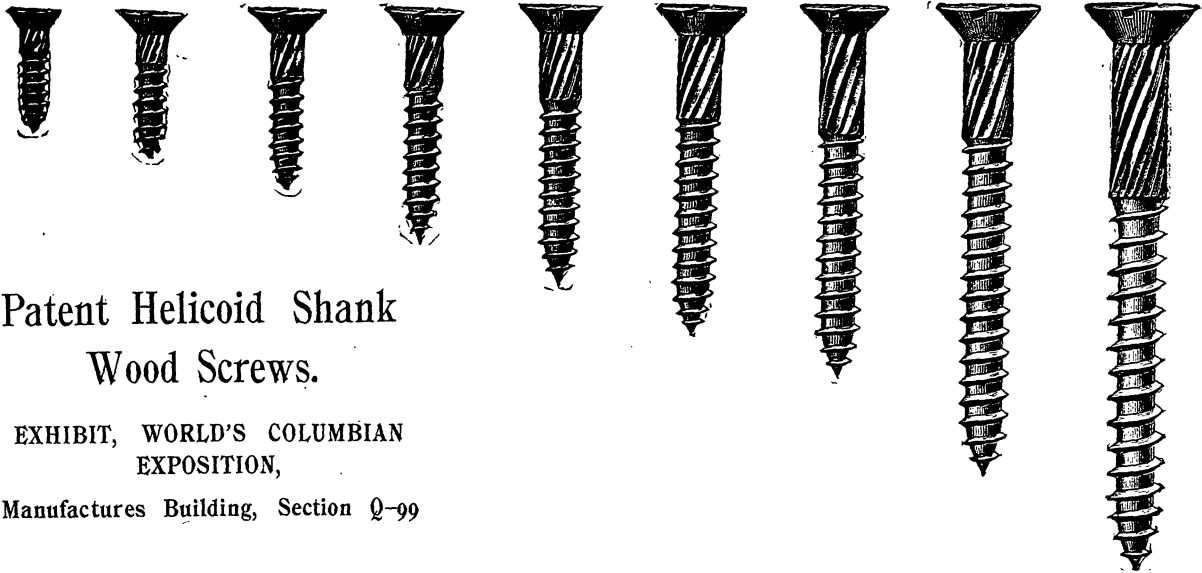
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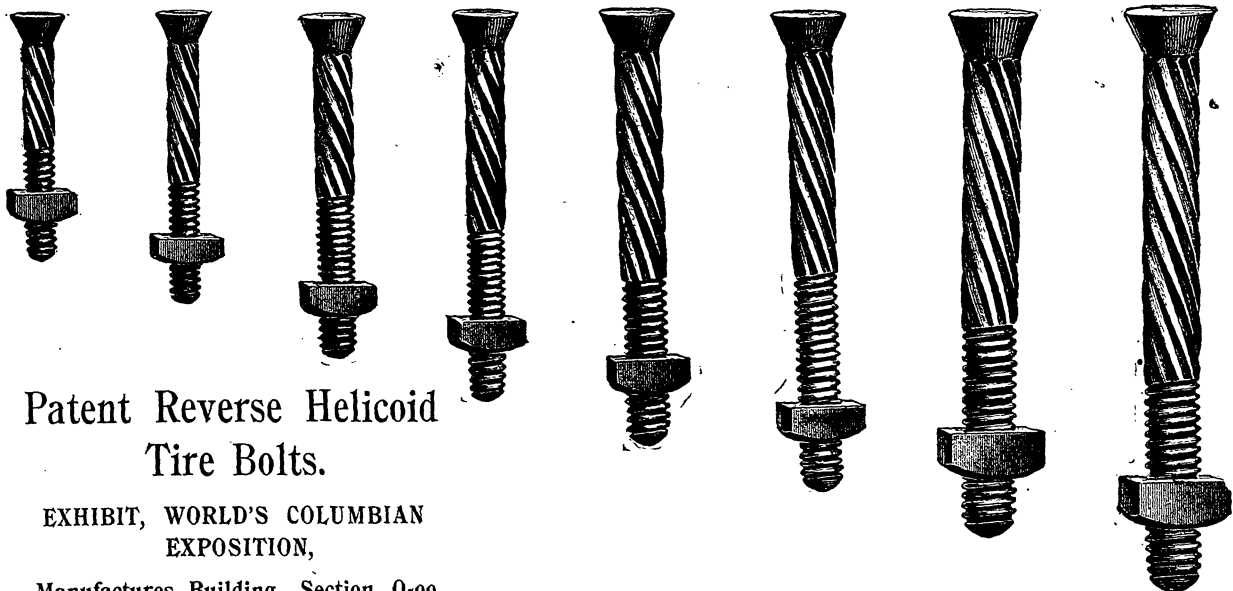
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Patent Helicoid Shank
Wood Screws.

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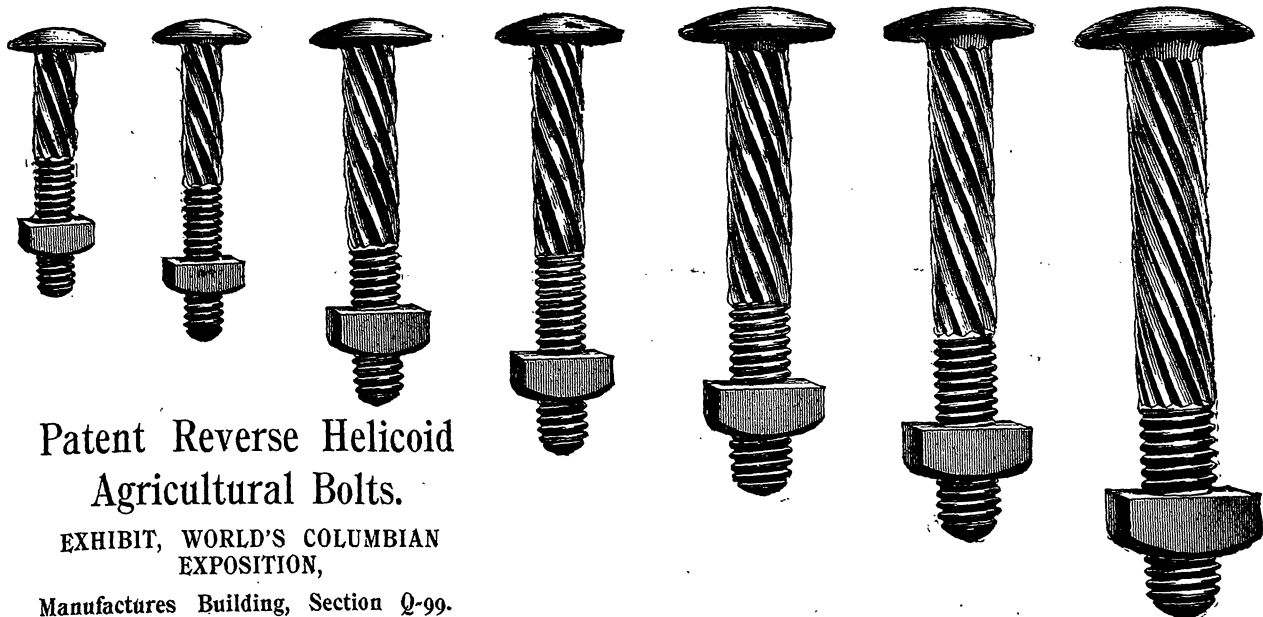
Manufactures Building, Section Q-99



Patent Reverse Helicoid
Tire Bolts.

EXHIBIT, WORLD'S COLUMBIAN
EXPOSITION,

Manufactures Building, Section Q-99.



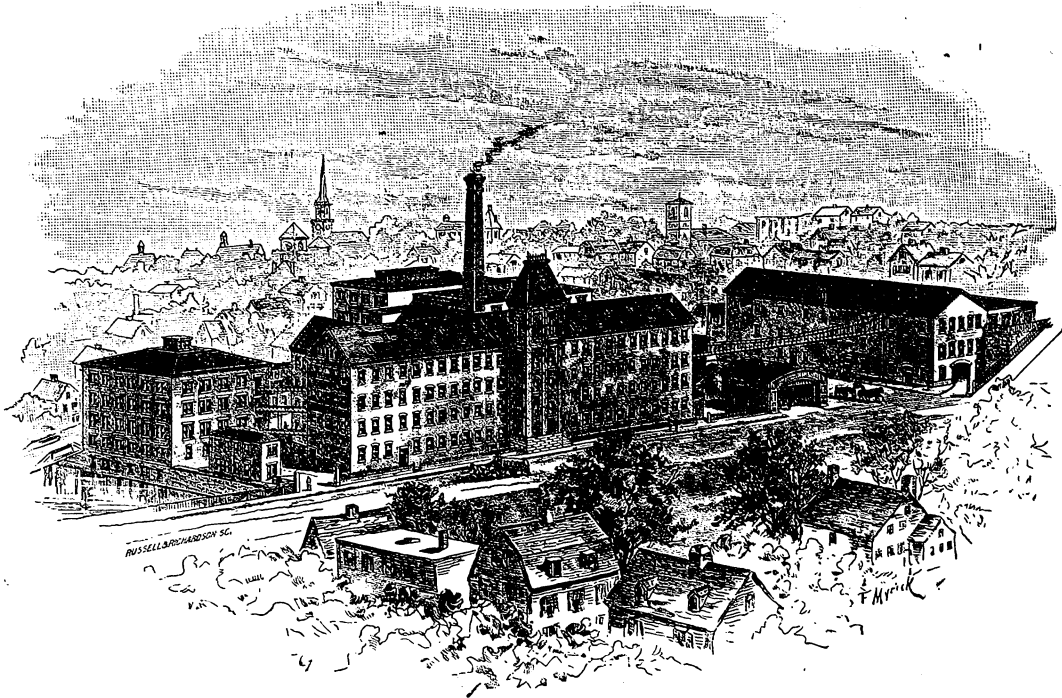
Patent Reverse Helicoid
Agricultural Bolts.

EXHIBIT, WORLD'S COLUMBIAN
EXPOSITION,

Manufactures Building, Section Q-99.

American Screw Company,

PROVIDENCE, R. I.



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TIRE BOLTS,

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SLEIGH SHOE BOLTS,

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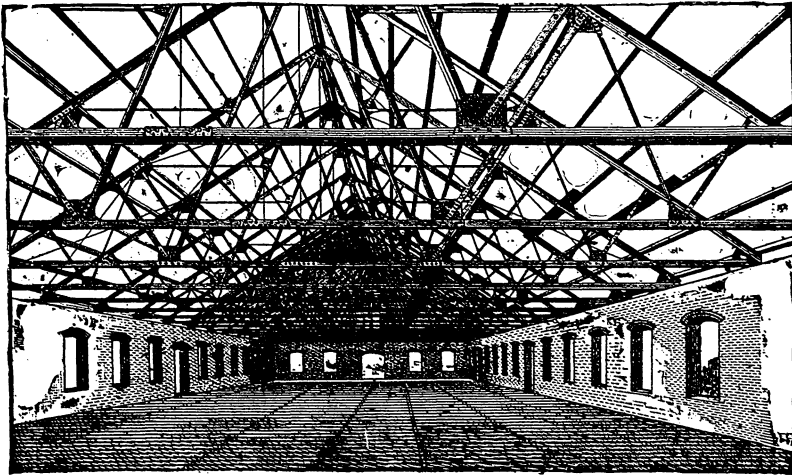
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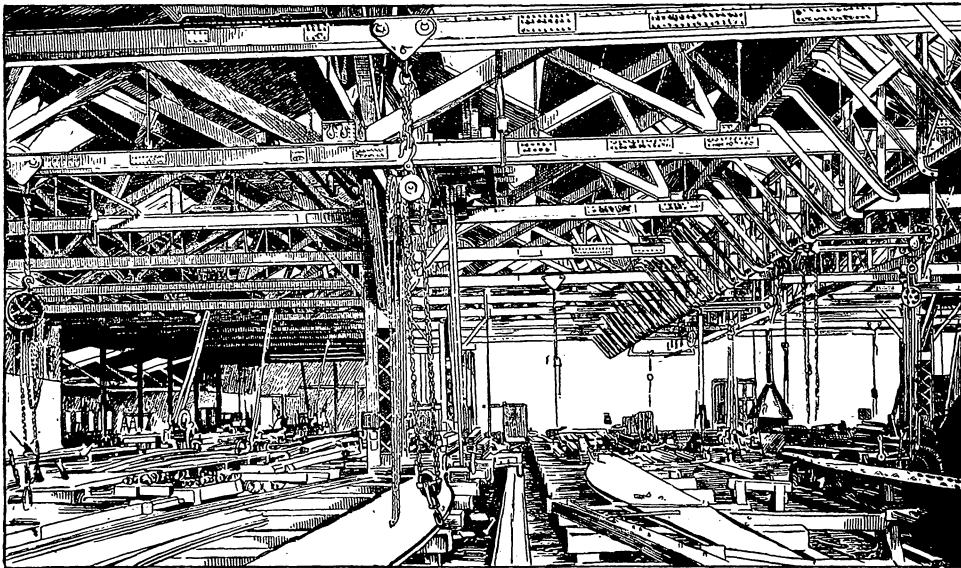
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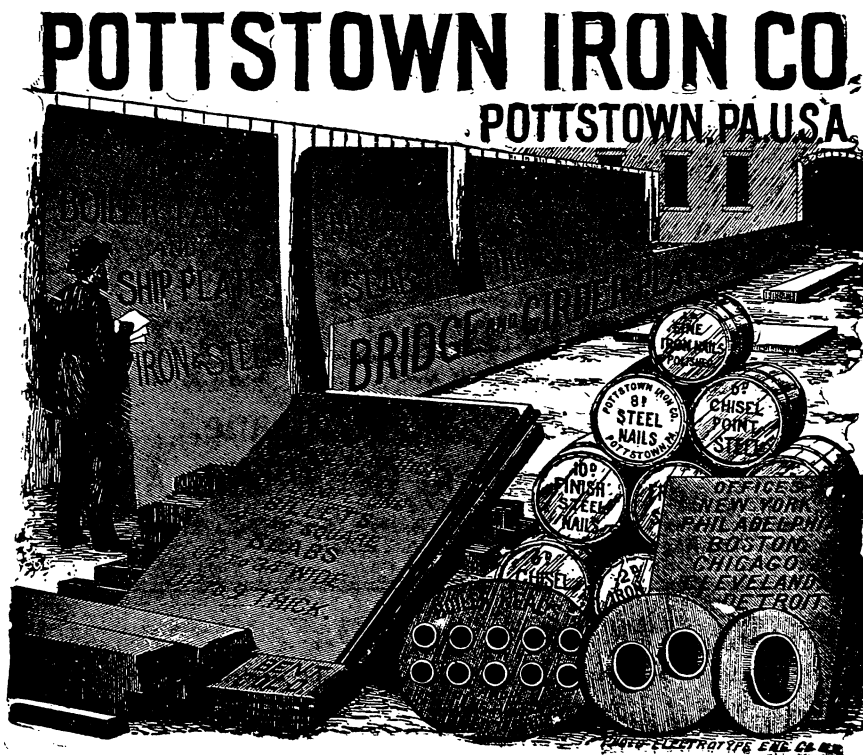
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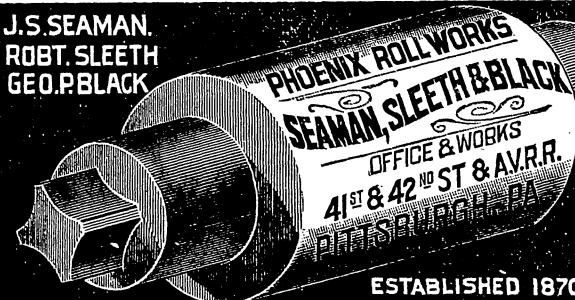
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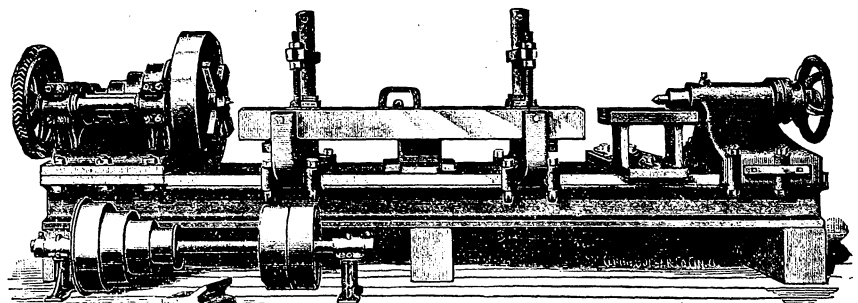
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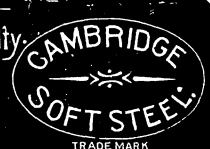
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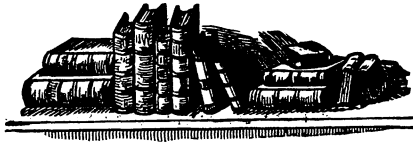
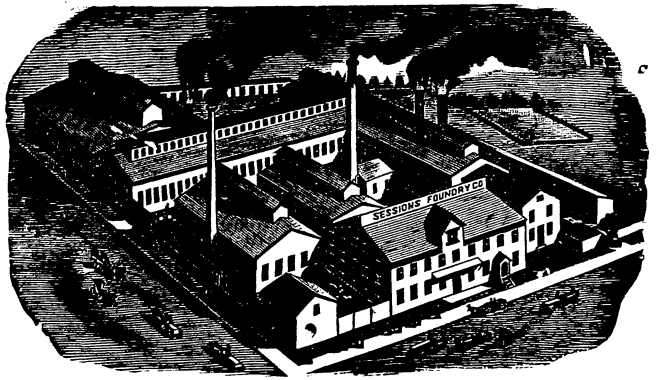
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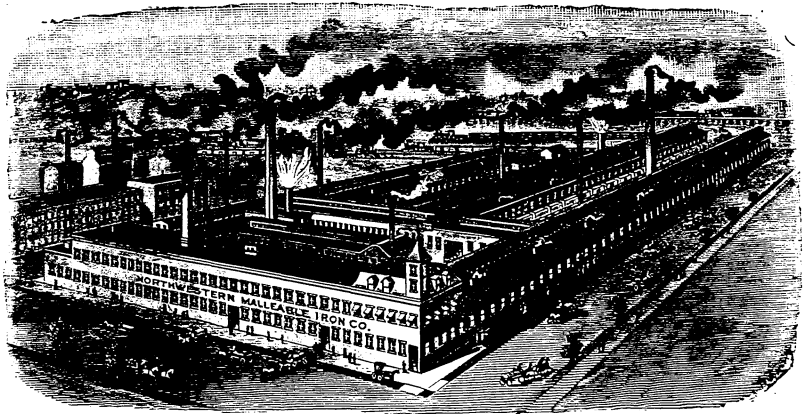
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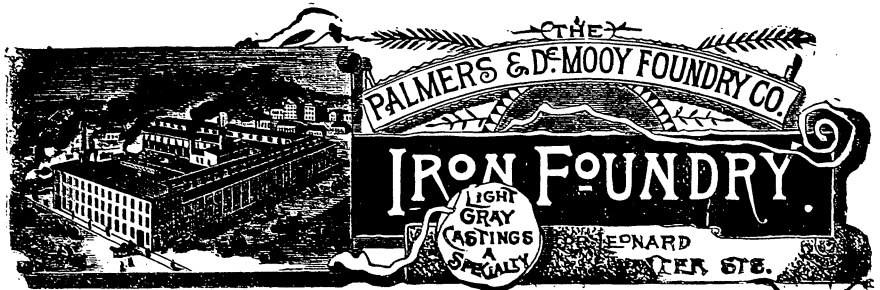
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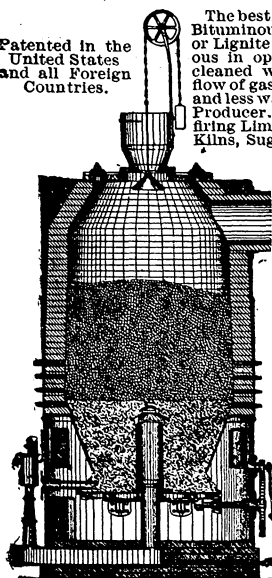
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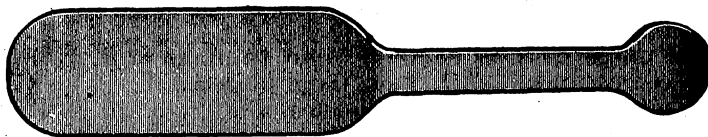
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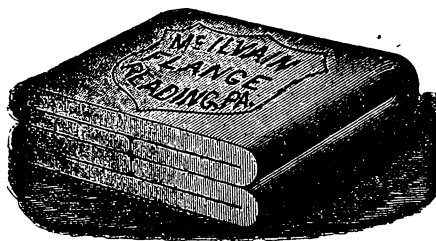
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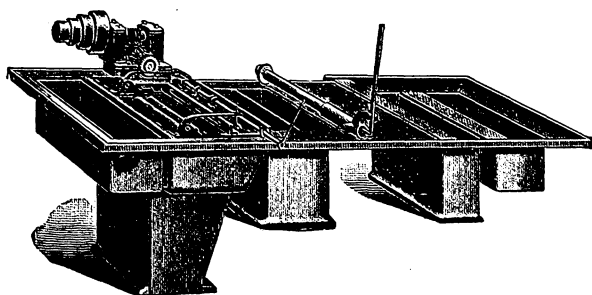
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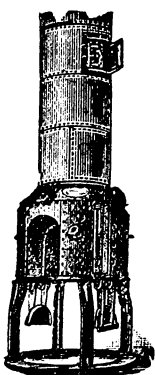
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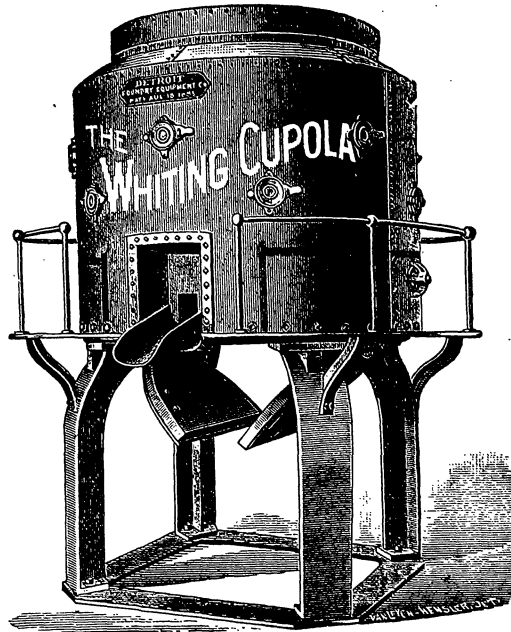
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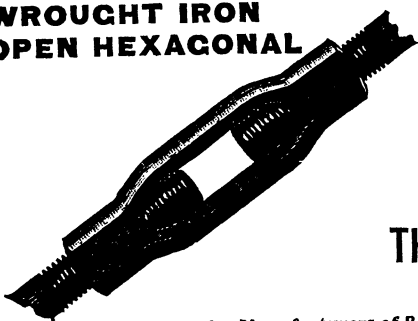
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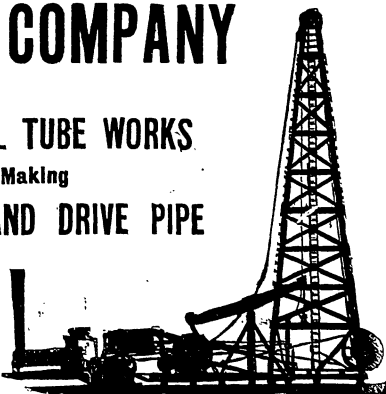
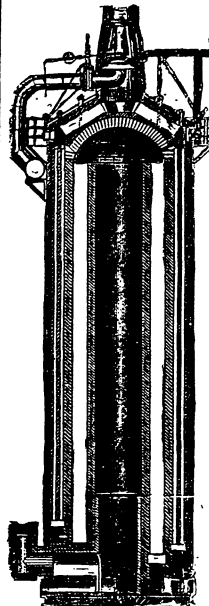
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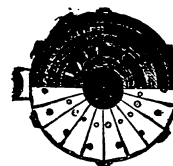
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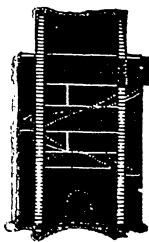
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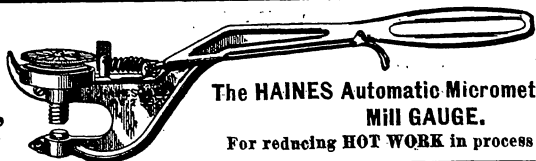
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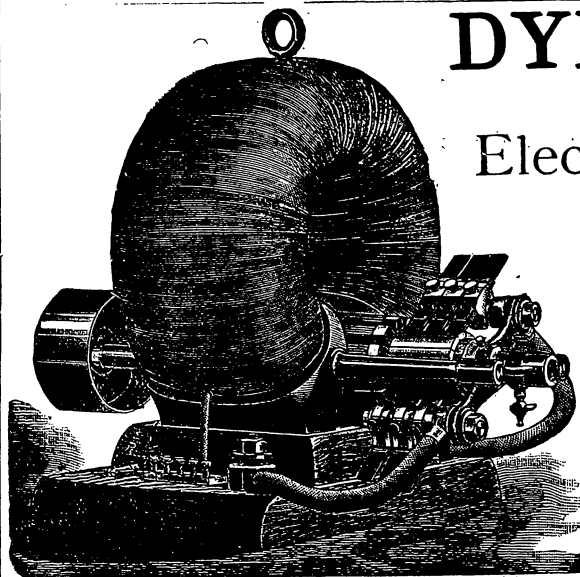
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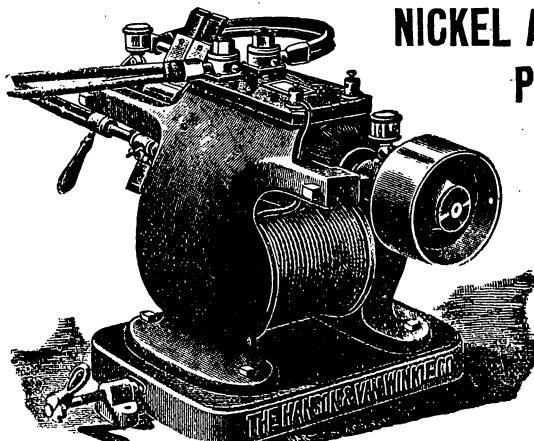
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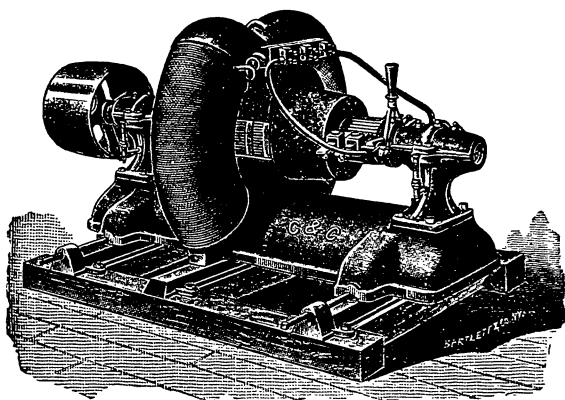
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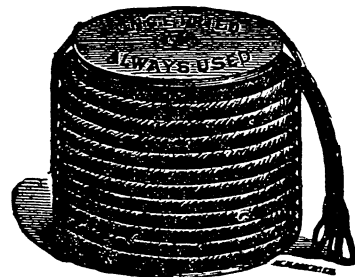
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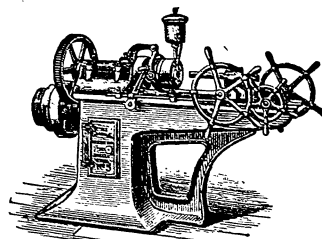
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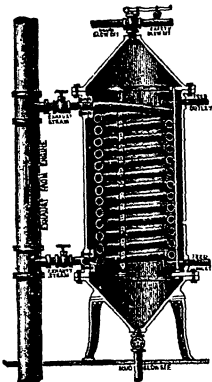


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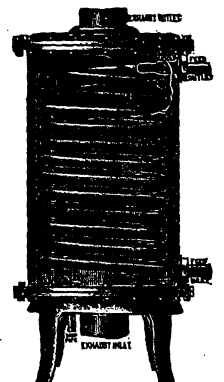
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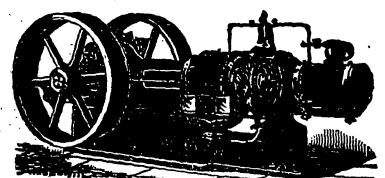
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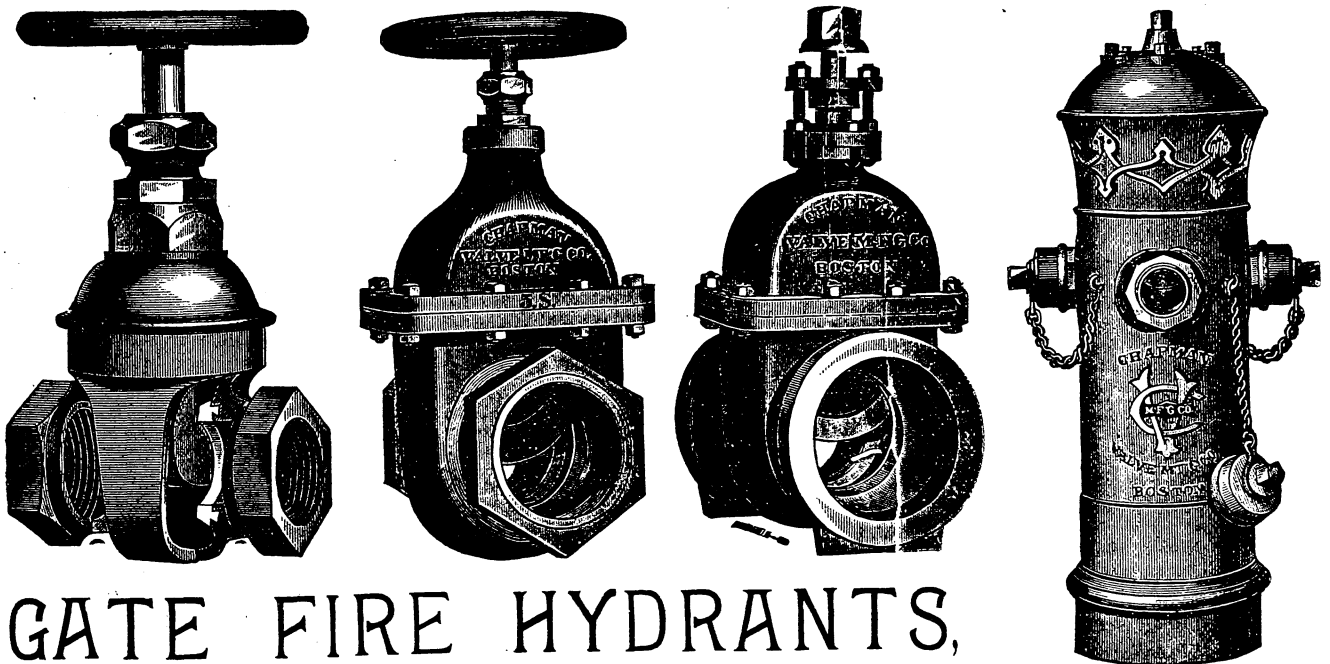
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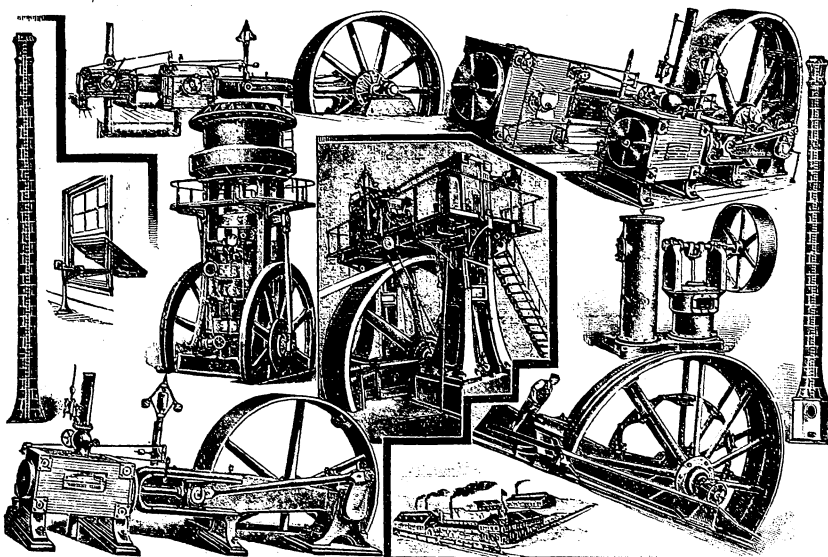
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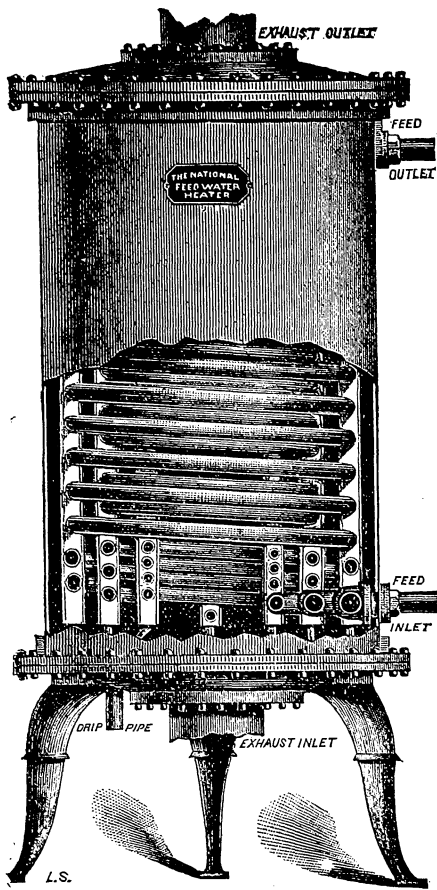
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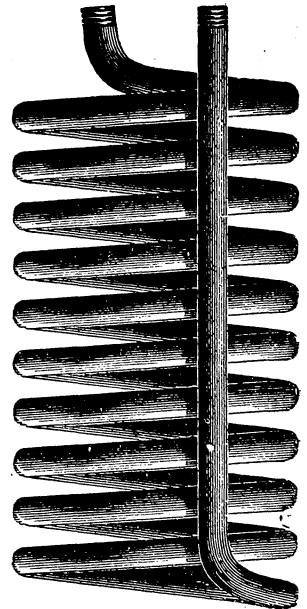
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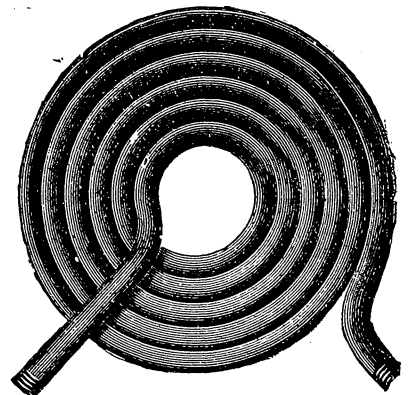
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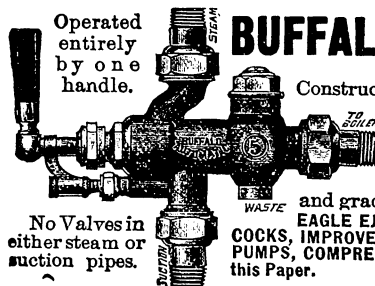
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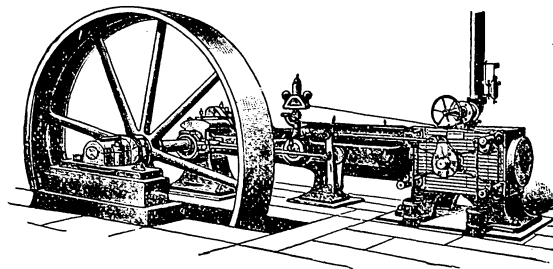
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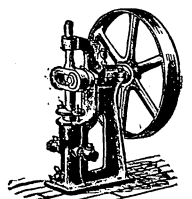
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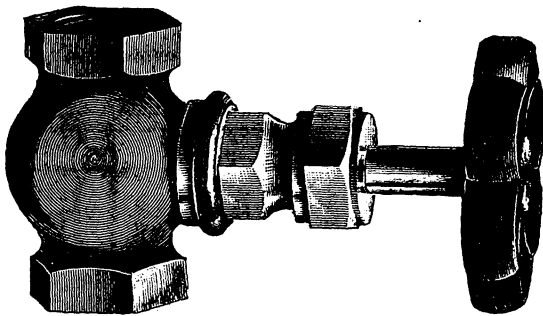
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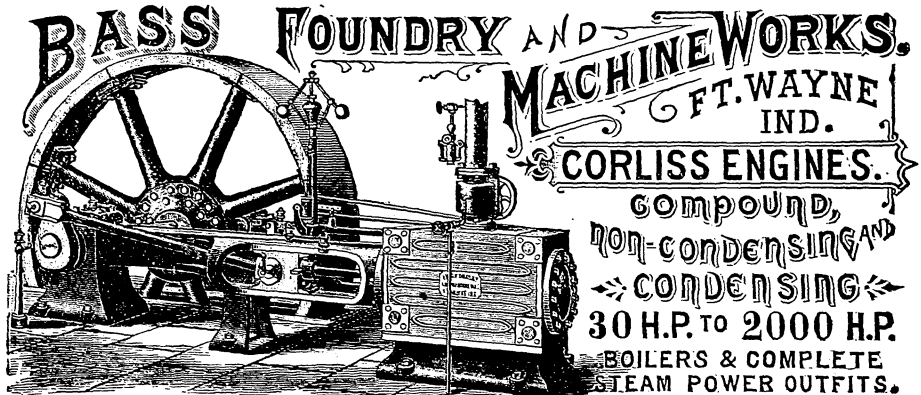
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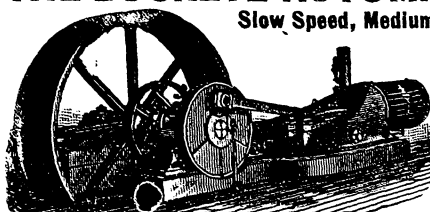


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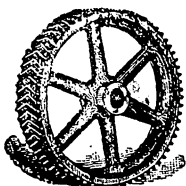
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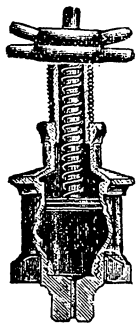
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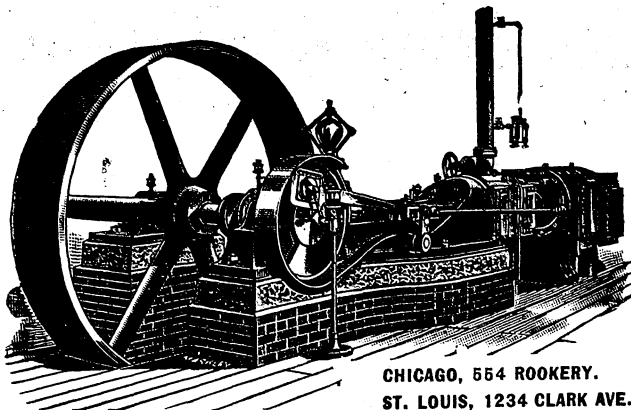
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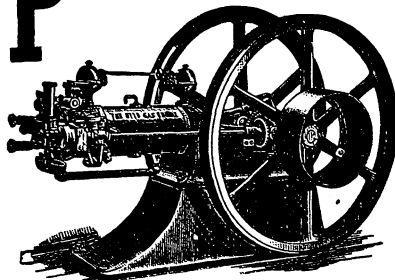
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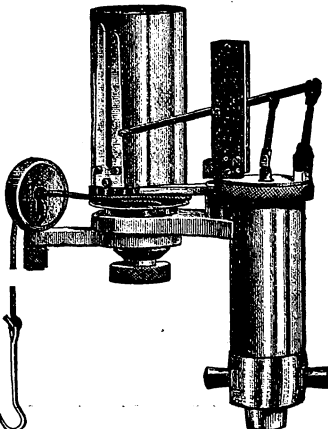
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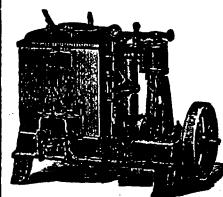
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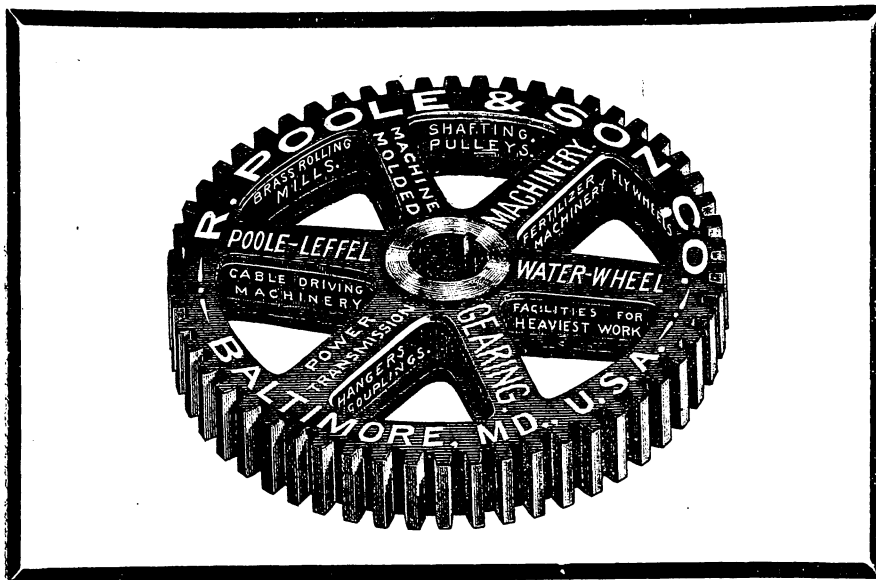
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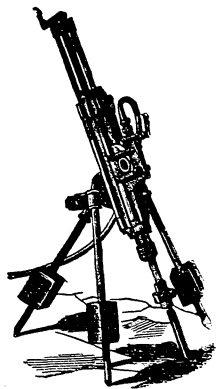
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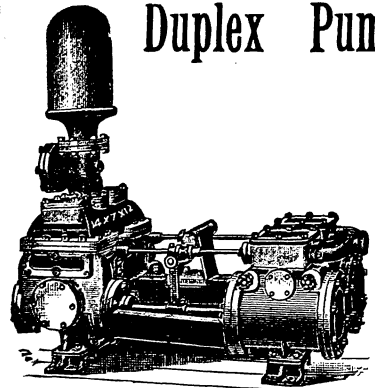
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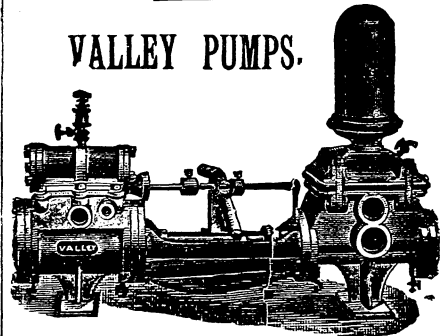
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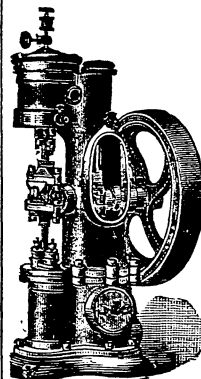


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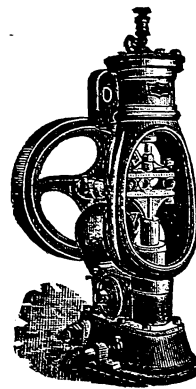


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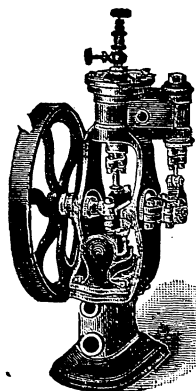
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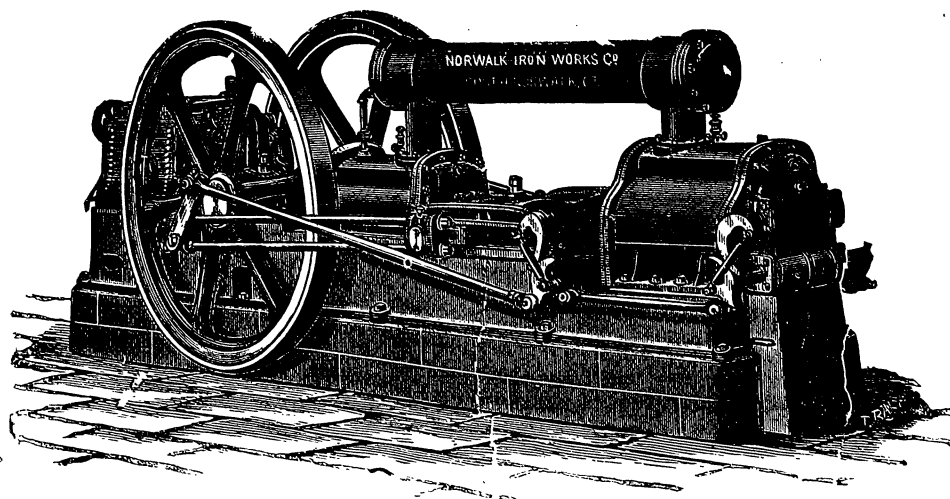
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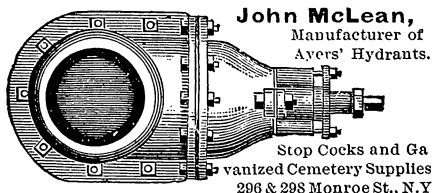
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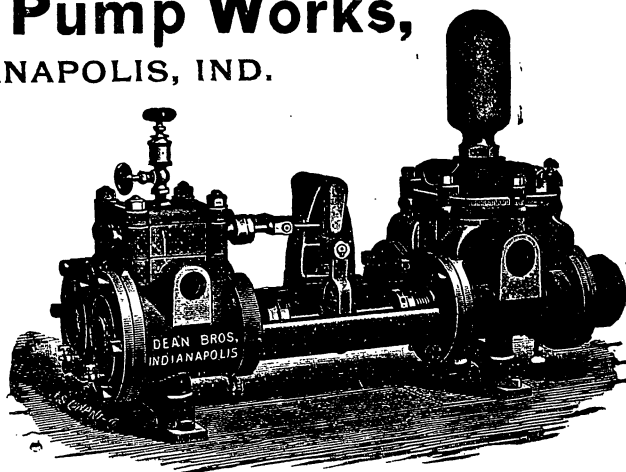
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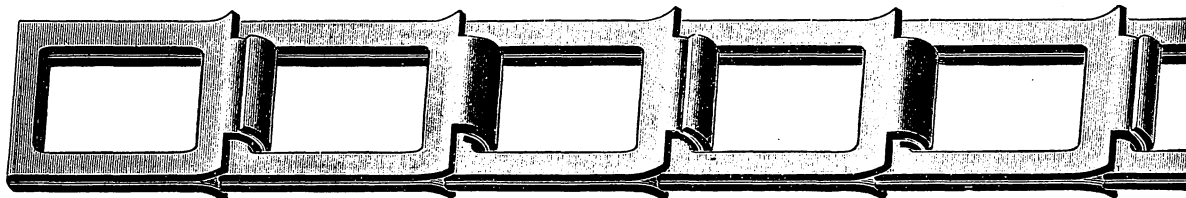
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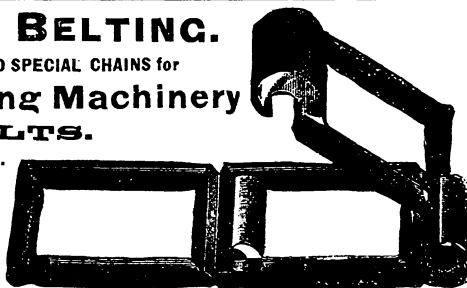
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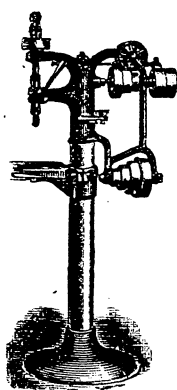
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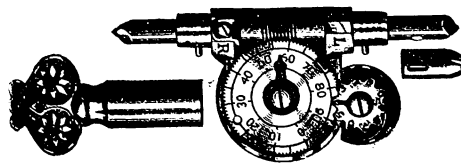
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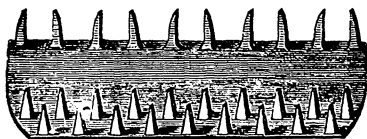
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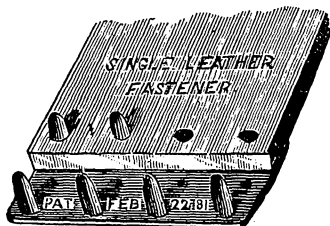


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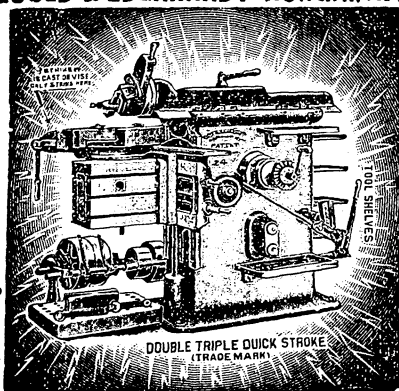
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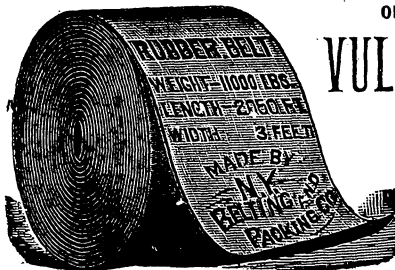
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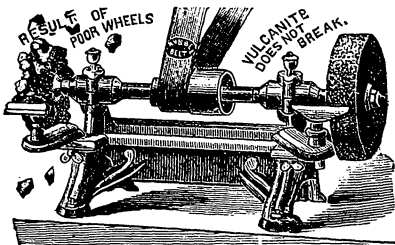
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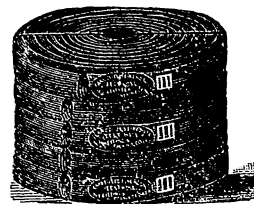
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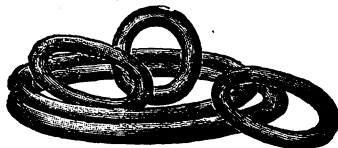
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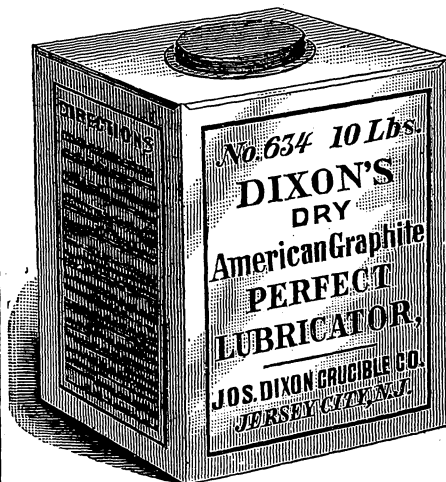
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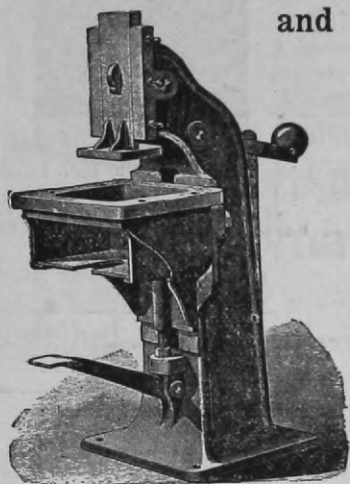
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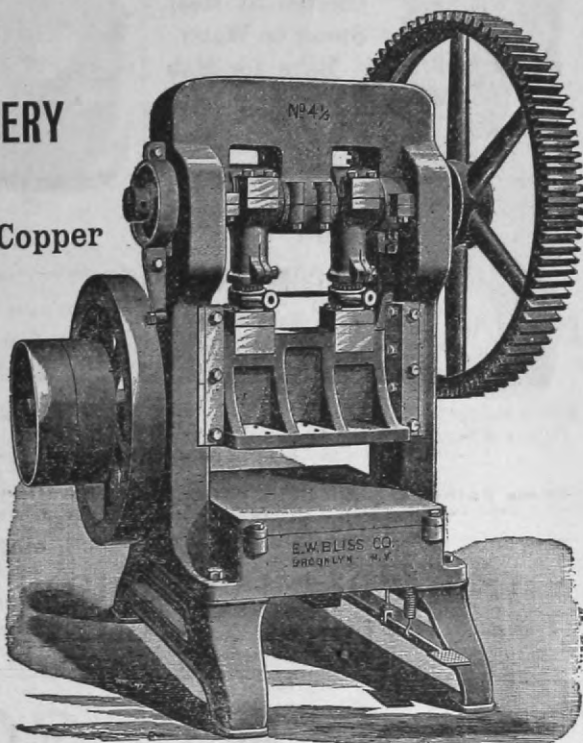
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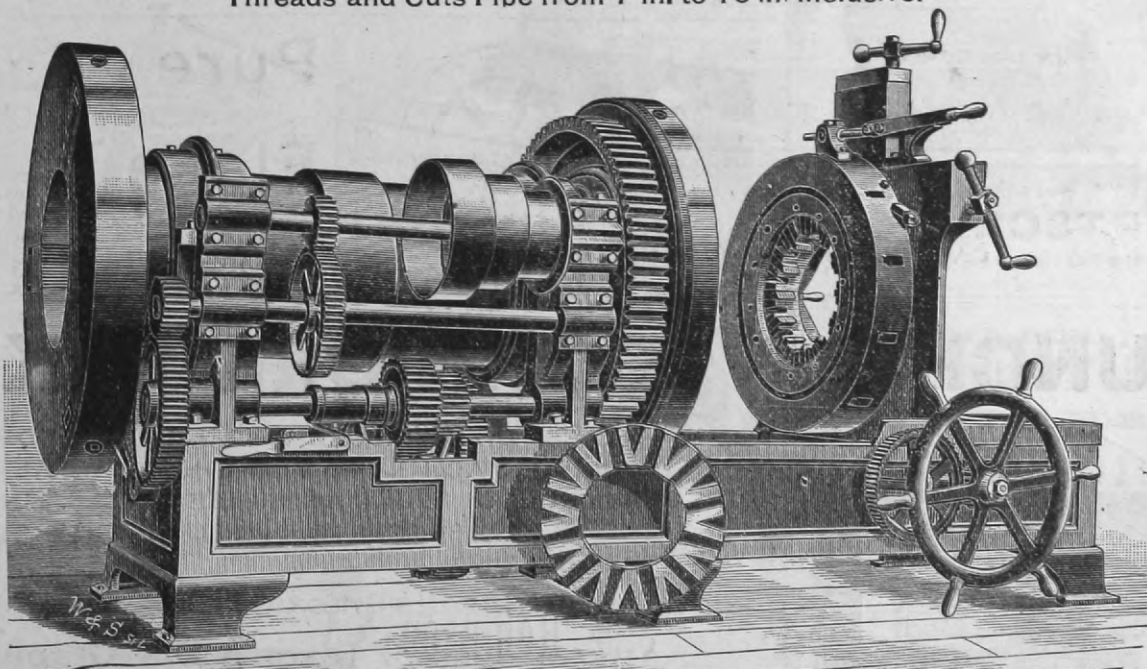
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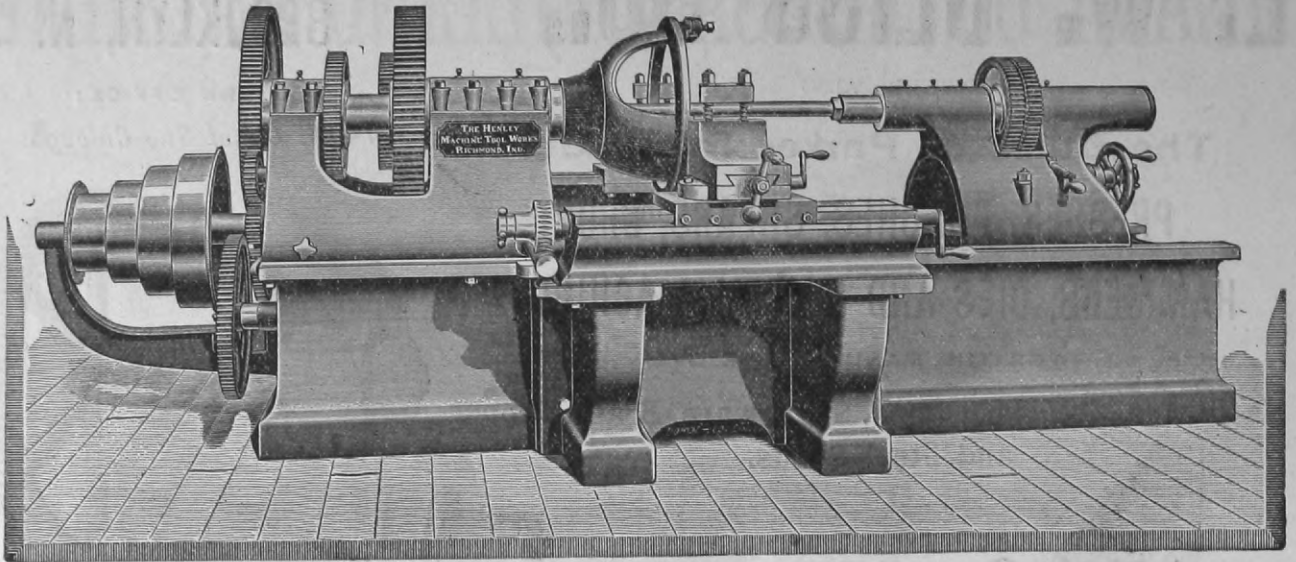
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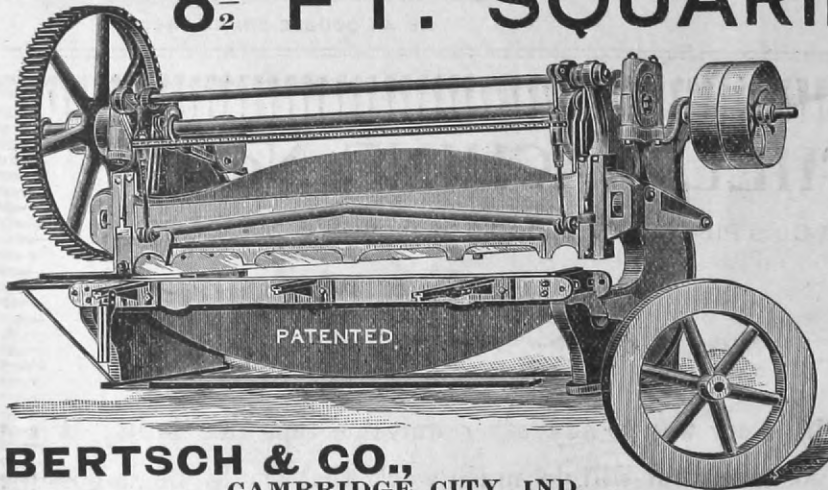
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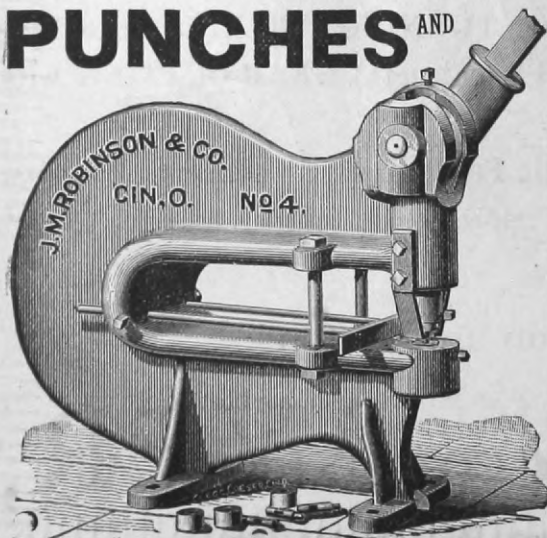
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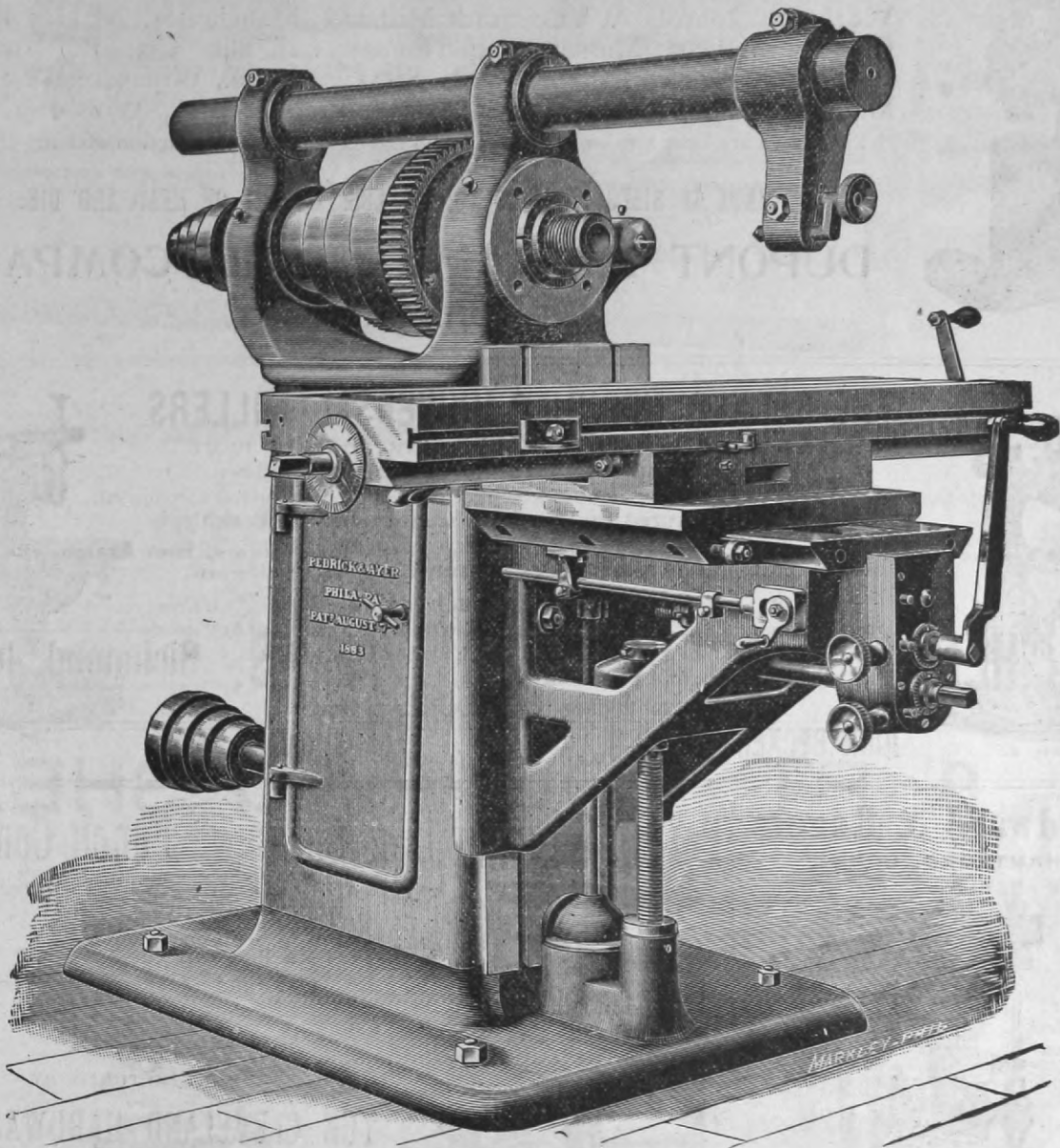
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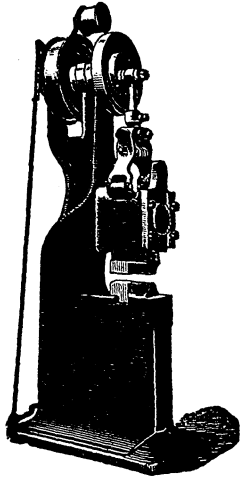
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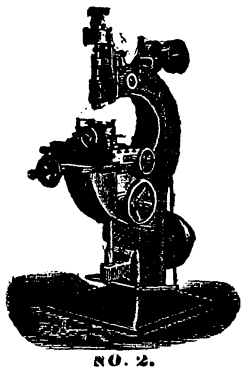
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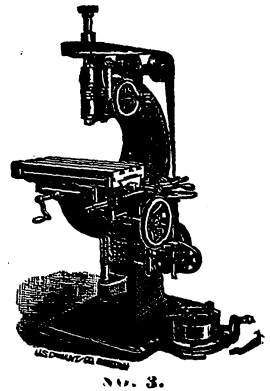
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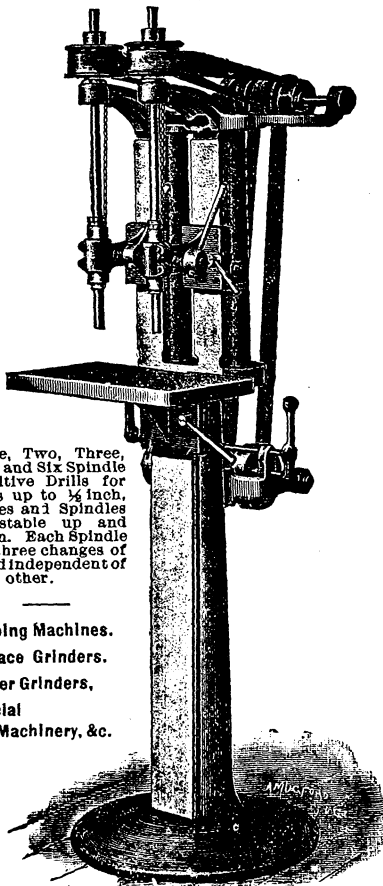
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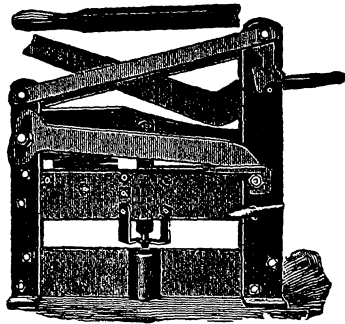
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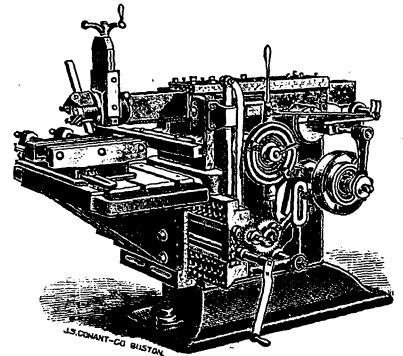
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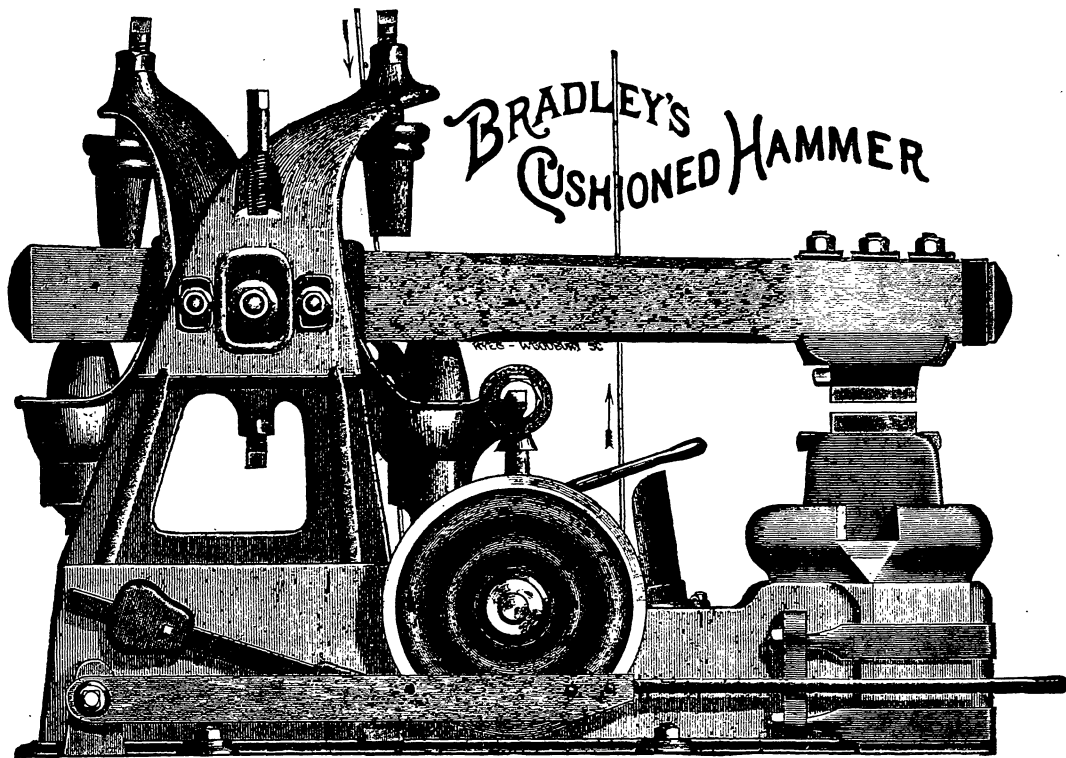
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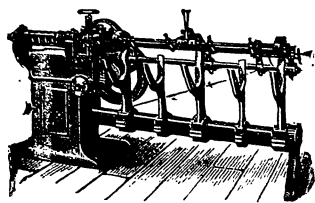
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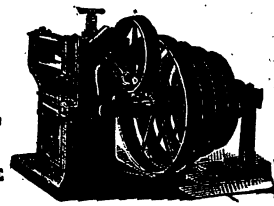
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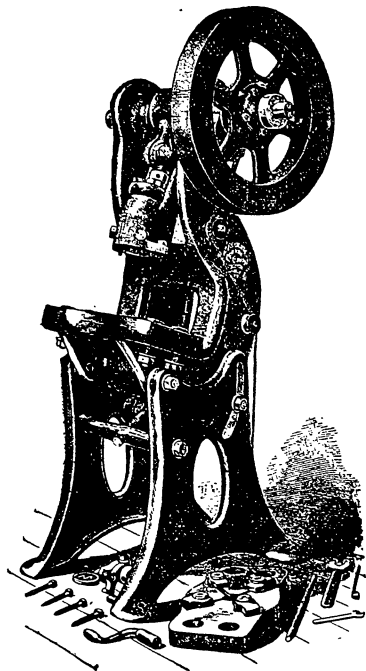
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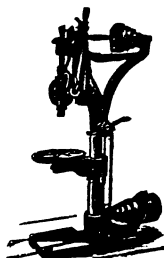
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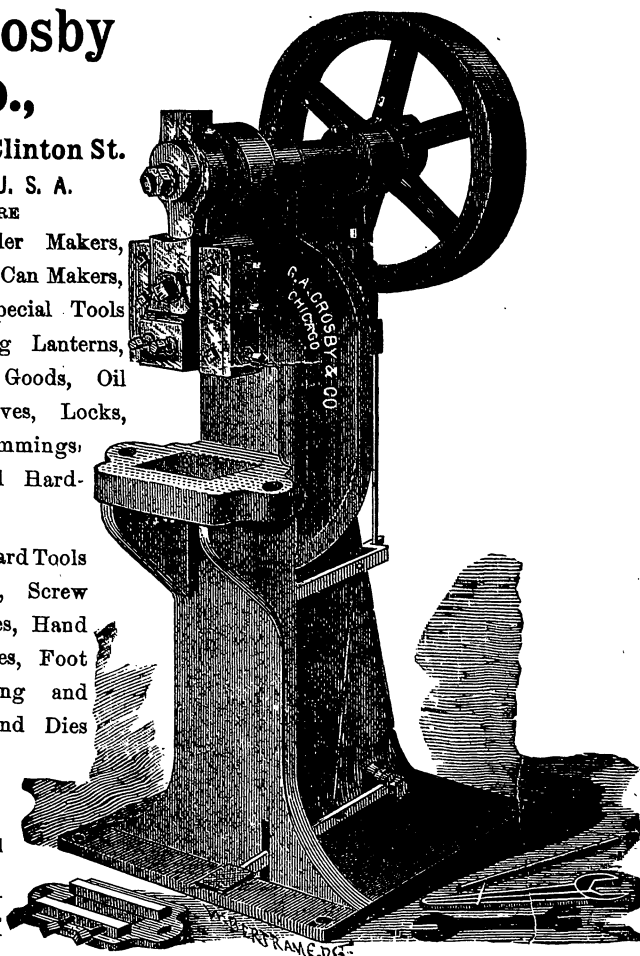
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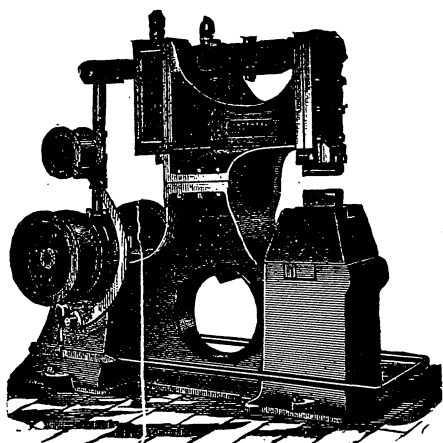
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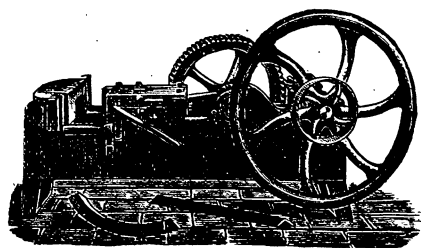
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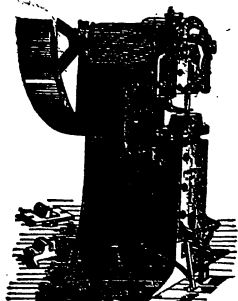
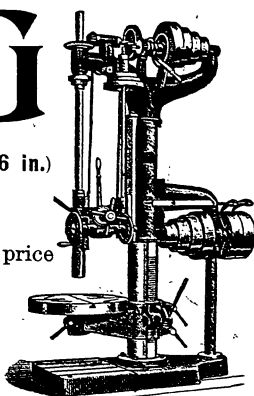
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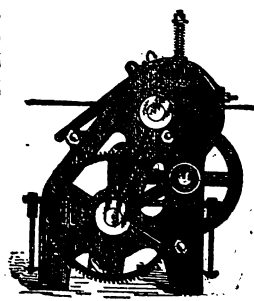
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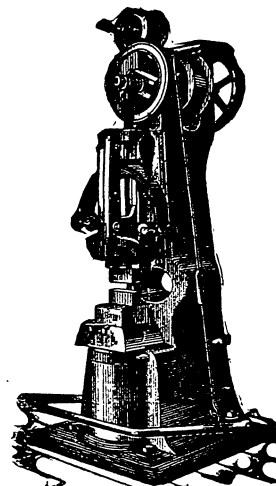
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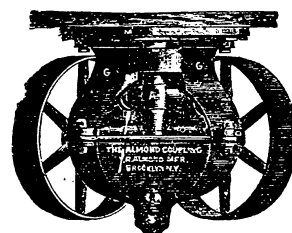
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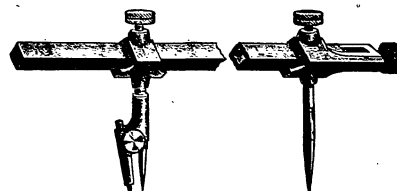
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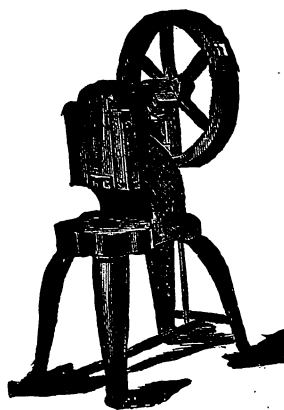


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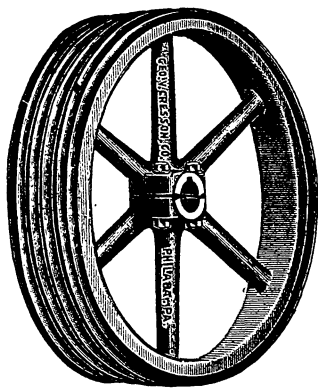
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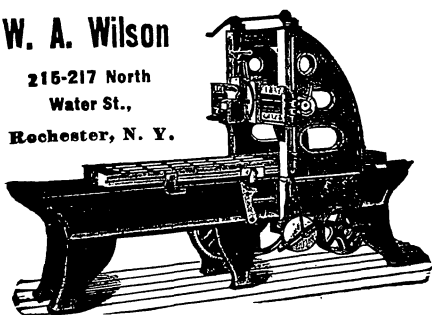
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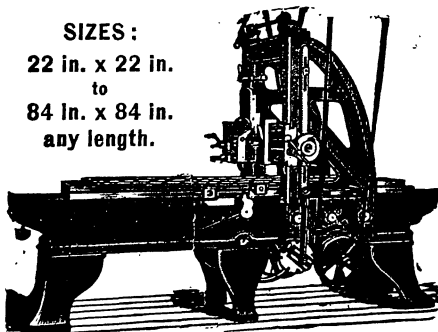


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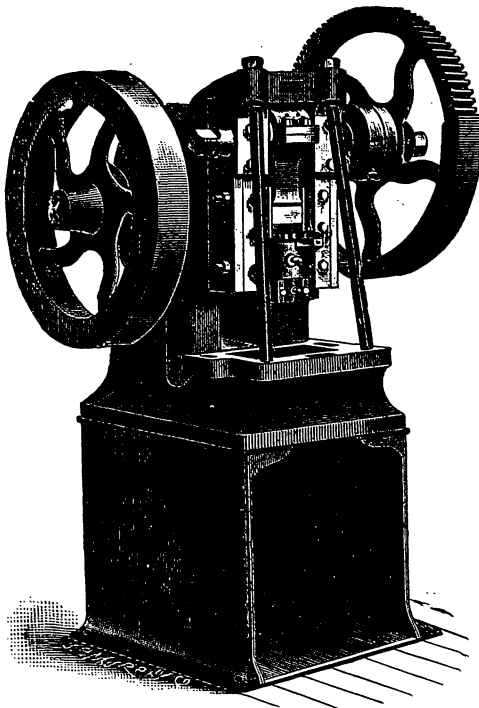
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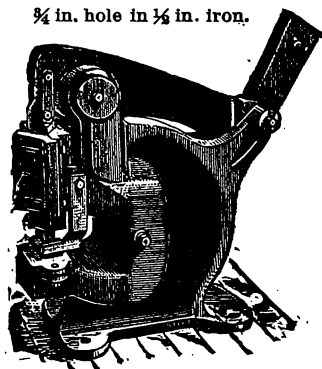
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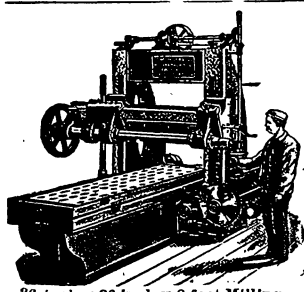
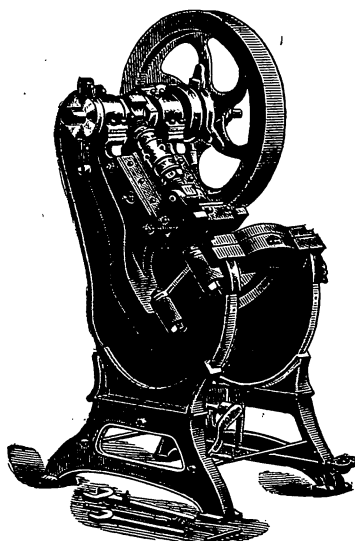
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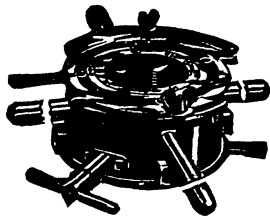
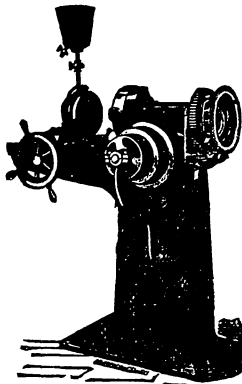
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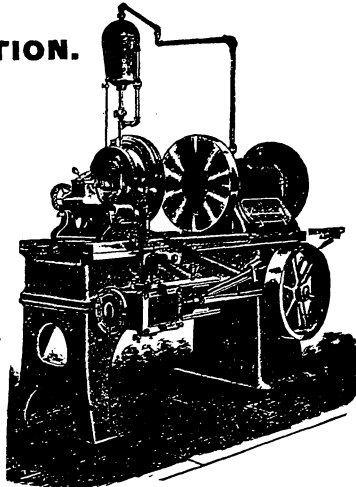
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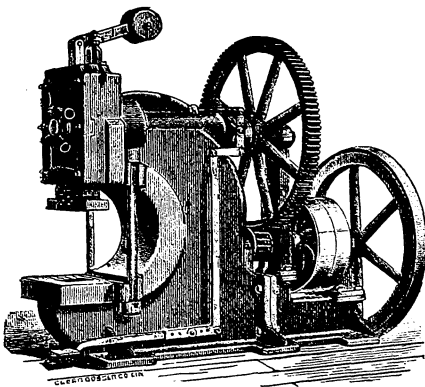
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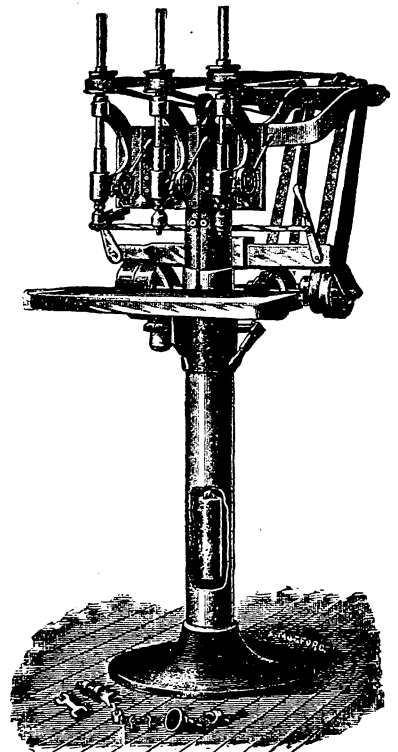


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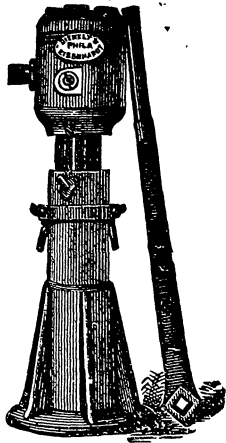
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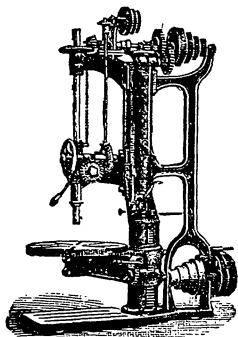
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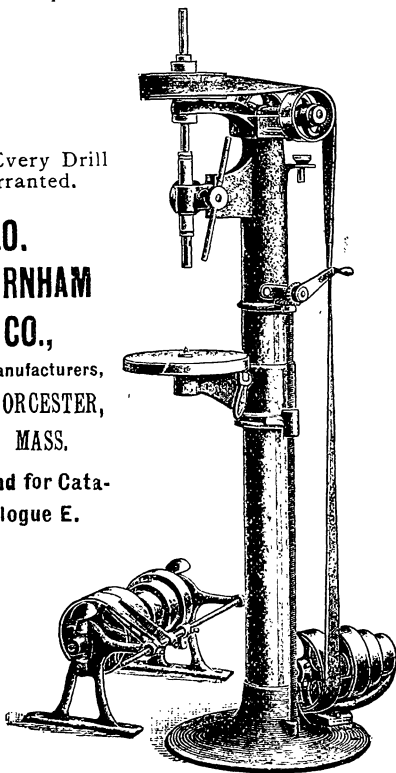
Among the features of this drill is the counter shaft, independent of and belting to the base of the drill, thereby removing all jar or shaking caused by unevenness in the belt. This system of belting imparts a perfectly steady motion to the spindle, and the belts being long, give great power while running quite loose. The tension of the belt is never on the spindle. The table can be brought to an exact position by the screw shown in cut and is free to swing either way. A bell and V centre are provided with each machine for center drilling and reaming. Either round or square table can be furnished.

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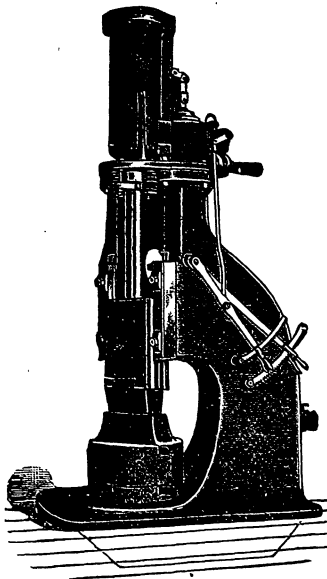
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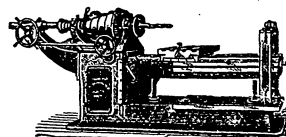
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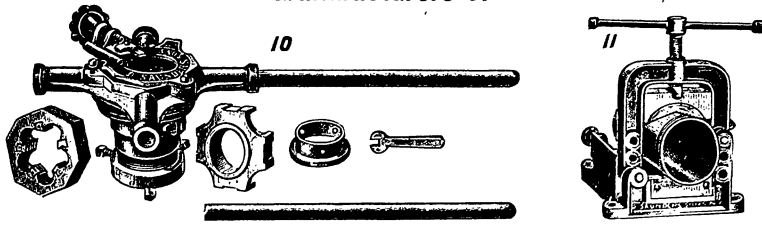
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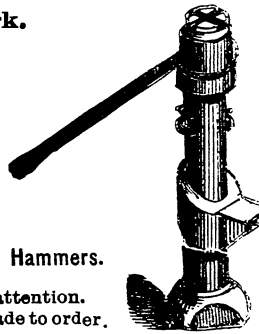
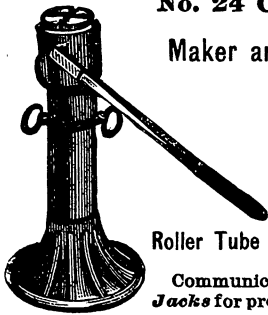
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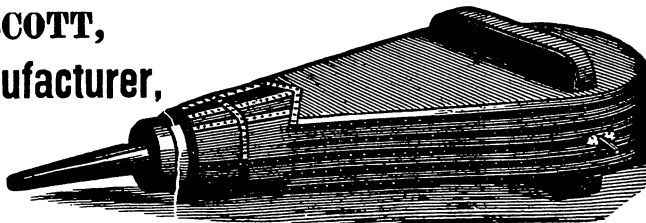
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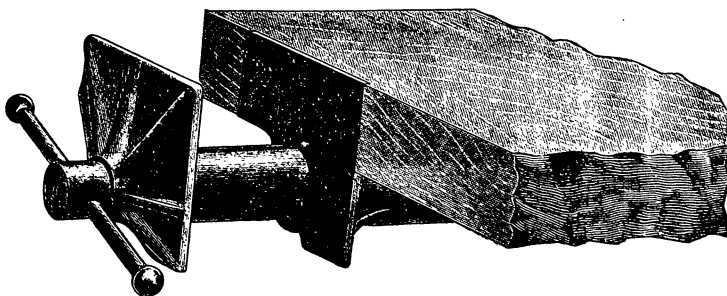
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The Screw being entirely enclosed makes it impossible for dirt or chips to interfere with its motion.

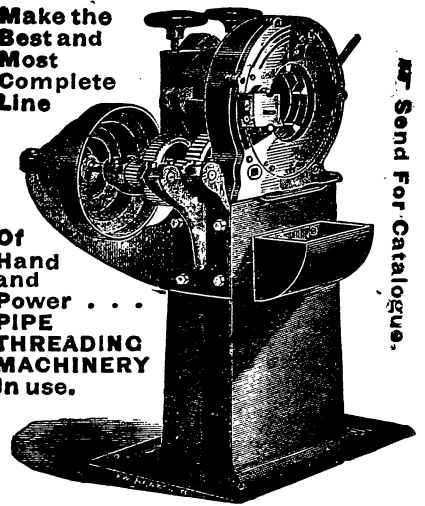
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No skill required
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The pressure on
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**THIS IS THE MOST PRACTICAL MACHINE FOR THE
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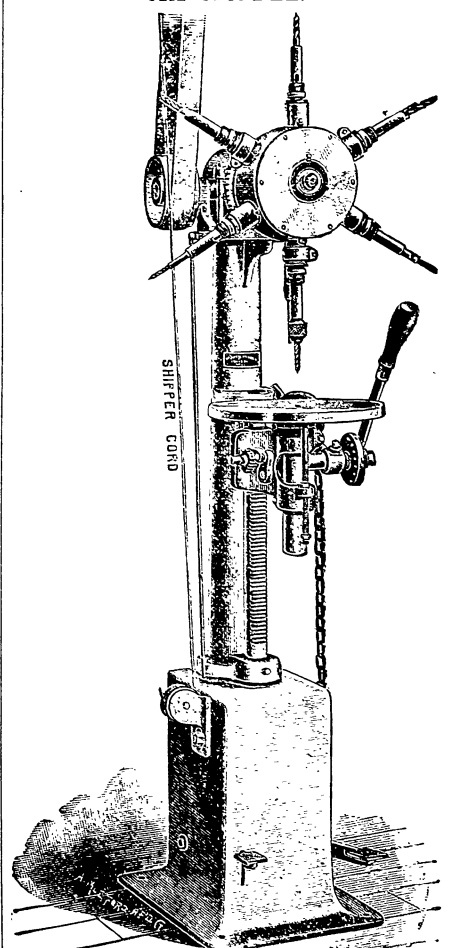
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all others remain stationary.

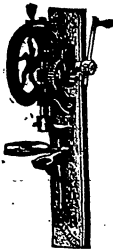
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Largest Blacksmith Forge in America

Fan 16 inches in diameter with a five inch outlet, Hearth 32 by 45 inches. Provided with our Patent Sloped Bottom Coal Box, which holds one-half bushel. This Slope Bottom Coal Box, in connection with the enormous size of Fan and Hearth, makes this Forge the greatest tool in America for the Blacksmith for quick and easy work.



**The World's Champion
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Weight, 120 Pounds.

Drills from 0 to 1 1/4 inch hole and to centre at a 15-inch circle. The Crank has Two True and Honest Speeds that can be shifted from shaft to shaft 18 (or balance wheel shaft), precisely like all high-grade and high-priced drills, and not a blindfold imitation of a double speed drill made with a wooden handle riveted on the rim of the fly wheel, at a cost of just 1 1/2 cents, necessitating the blacksmith to have a helper or turn the drill with the Left Hand, as one man operating must face the drill to do the work giving one hand for motion and the other for guiding and handling the work. By referring to illustration it will be seen that the Gears on this Drill are all provided with Two Journal Bearings, one on each side, this being the most important feature to make a drill strong and powerful, and just when all cheap-made Drills are weak, as their main driving gear revolves on a simple stud, cheaply screwed into the weakest part of the backbone, which is not only cheap and flimsy in construction, but not practical, which none know better than the intelligent mechanic. Our Catalogue illustrates Five Heavier Drills equally as cheap as the above.



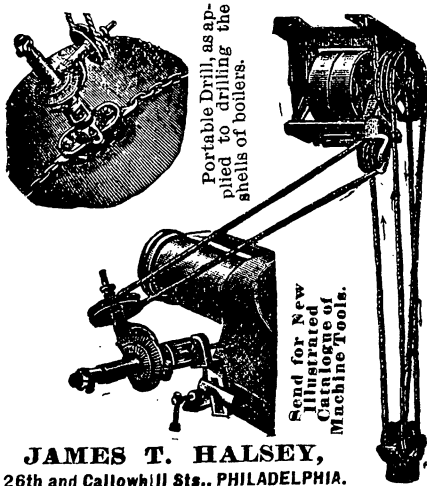
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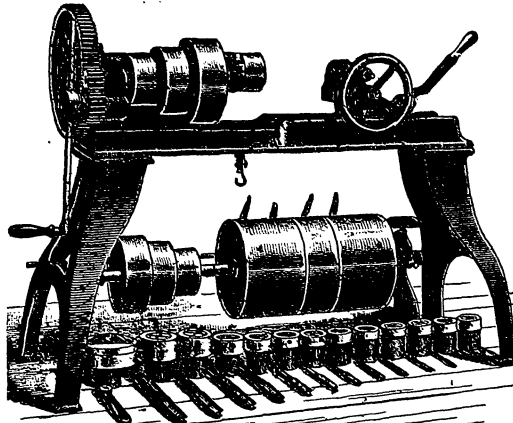
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Also makers of the CELEBRATED "Lightning" and "Green River"



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Maule's "Skeleton" Pipe Die

Two "Points" about it—only 2 (There are plenty more, but we only mention these two here.)

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2

Before it becomes dull from use it will cut as many perfect threads as the best solid die extant, and when it is dull, you don't throw it away and buy a new one—Oh, no! You simply sharpen the cutters on a common grindstone, and so make it practically as good as it was at first, and this sharpening process may be repeated a number of times.

A sample One-inch "Skeleton" Pipe Die, either 2 3/8 or 2 1/2 x 3/4 thick, by mail, postage prepaid, will cost you 62 cents, and will be sent upon receipt of a Postal note for that amount.

DO NOT SEND US ANY POSTAGE STAMPS.

You may return such sample to us, at our expense, if, after seeing it, you do not consider it worth the price. Don't the above sound as if it might save you some money—if TRUE?



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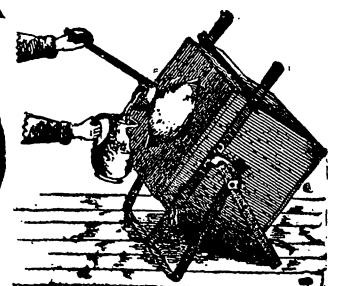
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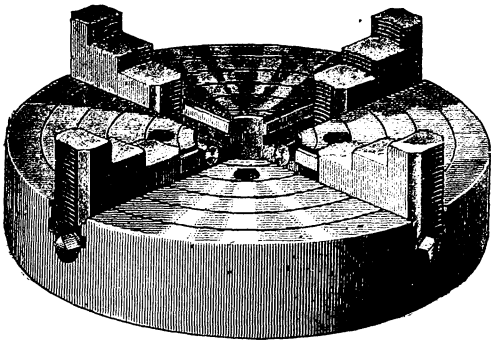
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INDEPENDENT CHUCK, NO. 18,

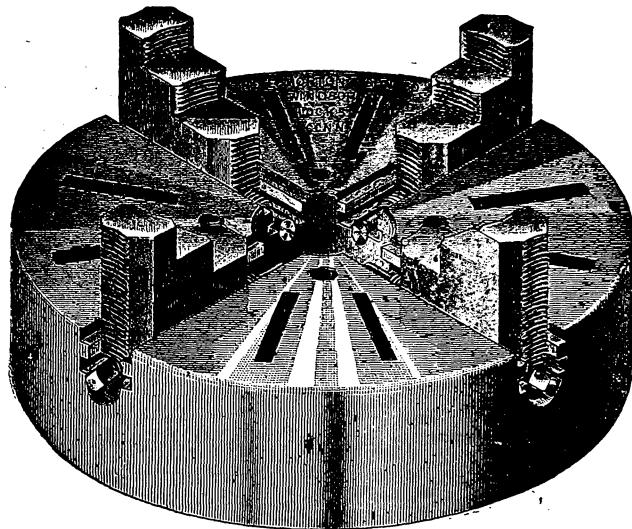
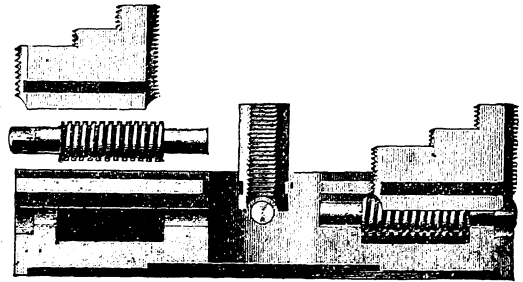
With Reversible Jaws.

—ALSO—

Showing Sectional Cut of Jaw.

We guarantee our Chucks in every particular.

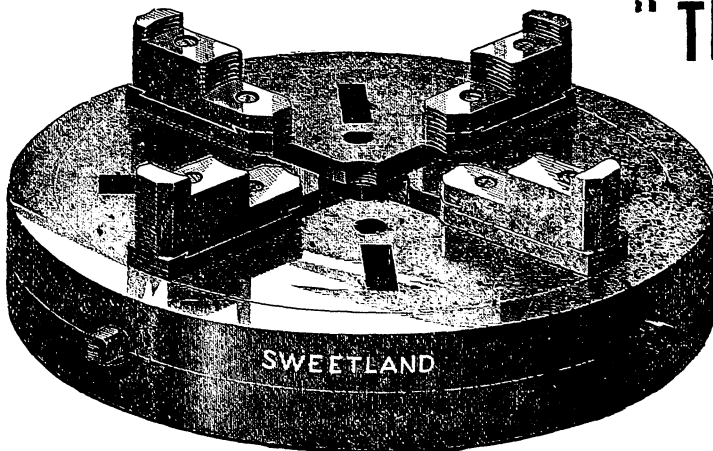
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IMPROVED INDEPENDENT CHUCK.

This cut represents a line of Improved Independent Reversible Jaw Chucks that we have lately added to our large list of Universal and Combination Chucks. We make this style of Chuck in twenty-two sizes, varying in size by two inches from four to thirty-eight inches in diameter. Send for Illustrated Price-List.

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Or CHAS. CHURCHILL & CO., 21 Cross Street, Finsbury, London, E. C., England.



"THE SWEETLAND CHUCK."

WITH NEW PATENT REVERSIBLE JAWS.

UNIVERSAL.

INDEPENDENT.

ECCENTRIC.

CONCENTRIC.

SIMPLEST.

REVERSIBLE.

STRONGEST.

MOST ACCURATE.

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IMITATED BUT NEVER EQUALED.

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ESTABLISHED 1849.

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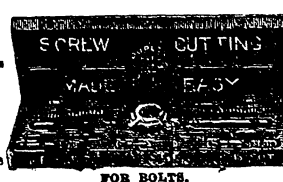


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Quick. Accurate. Durable.

15,000 now in use.

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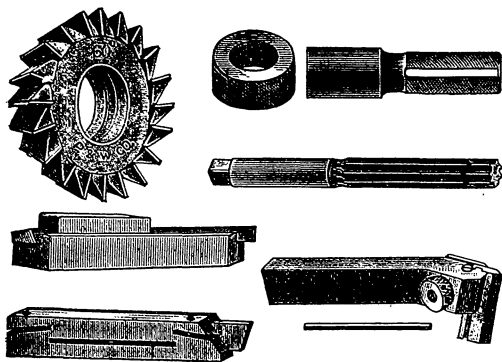
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SKINNER CHUCKS.

Independent, Universal and
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Also DRILL CHUCKS.
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Waste Steel and time in forging ordinary diamond point and side turning tools, V and square thread cutting and cutting-off tools, but use holders with inserted cutters that are made on the interchangeable plan for these purposes.

DON'T make milling cutters, taps, dies, reamers, boiler plate punches, or do without gauges, but save money by using those made by

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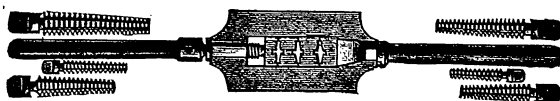
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All Sizes to 1 1/4 inches diameter.



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BUTTERFIELD & CO., Derby Line, Vt.,
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WRITE FOR ILLUSTRATED CATALOGUE.

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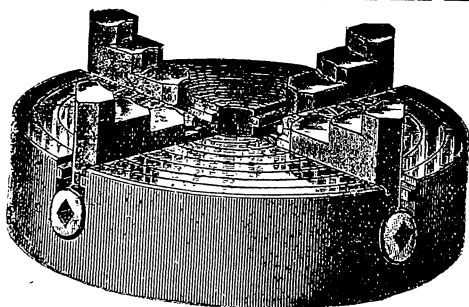
We manufacture and keep in stock a full line of chucks for all purposes.

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Reversible Face-Plate Jaws for Use on Lathes from 30 to 72 Inch
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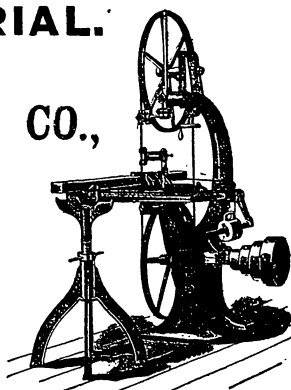
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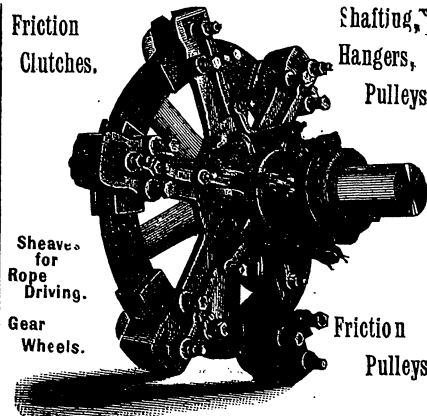


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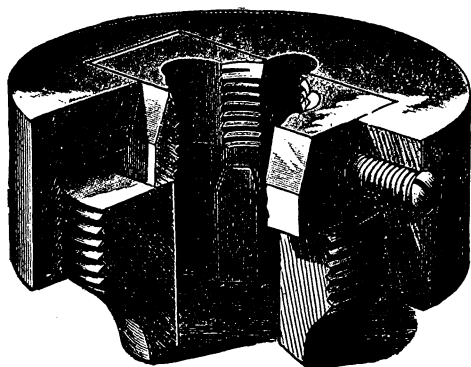
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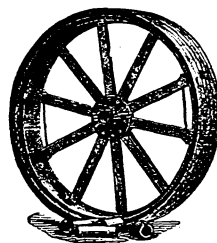
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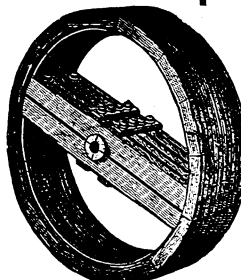
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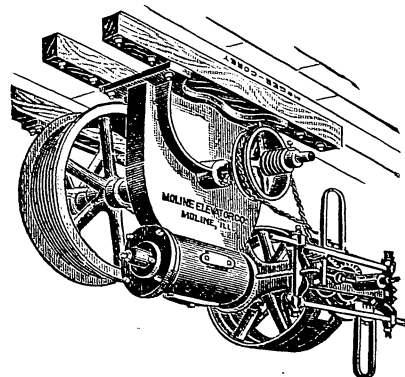
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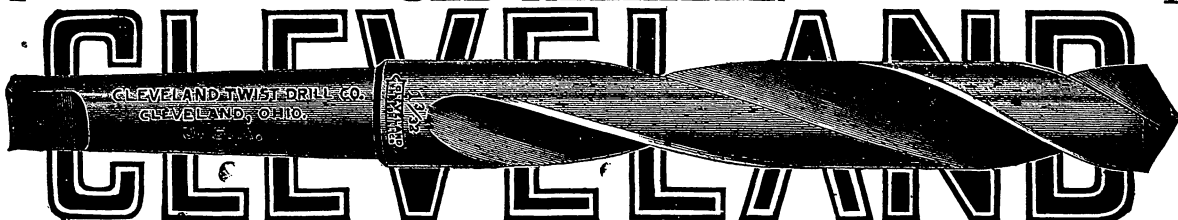
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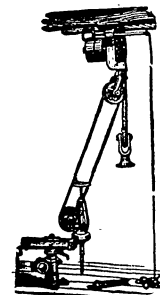
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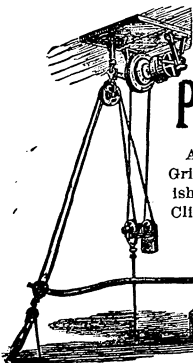
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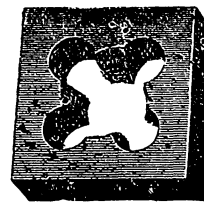
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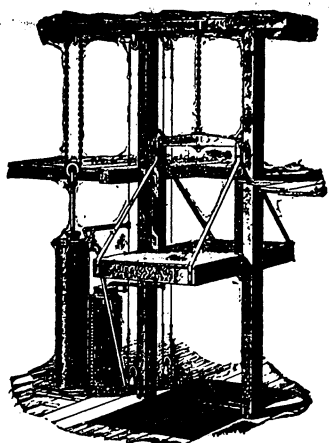
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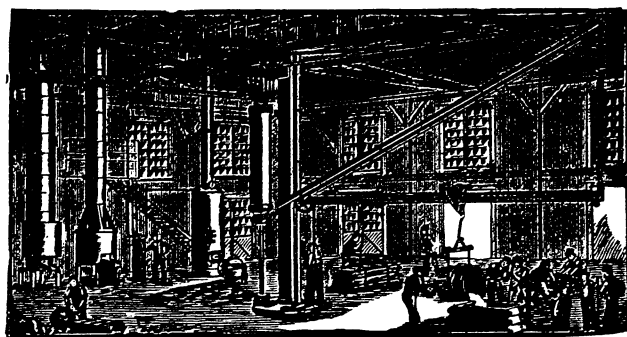
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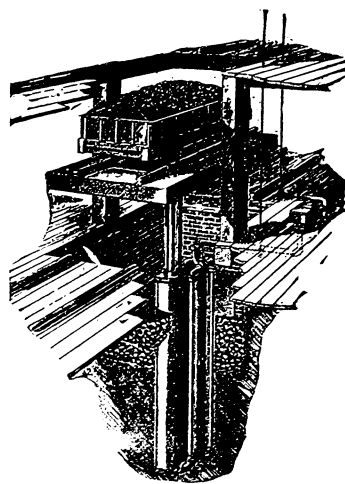
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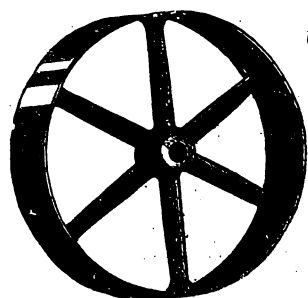
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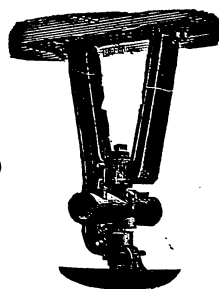
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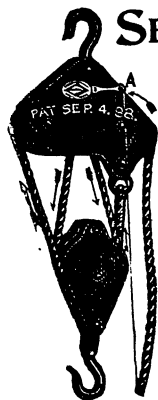


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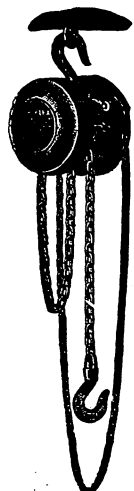
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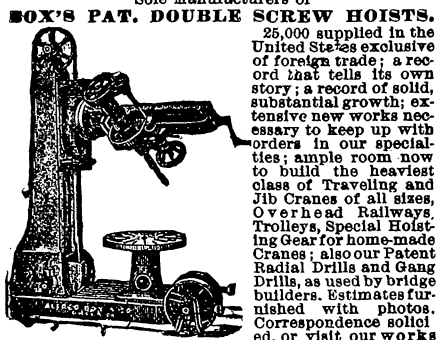
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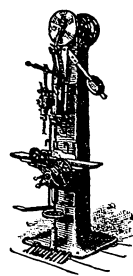
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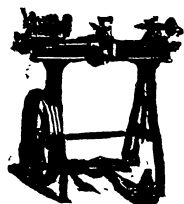
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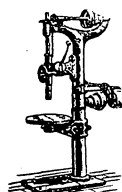


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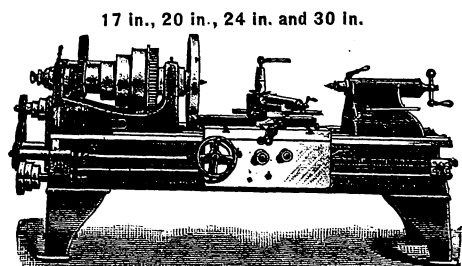
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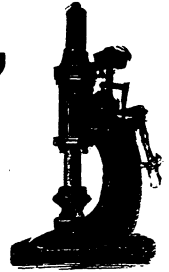
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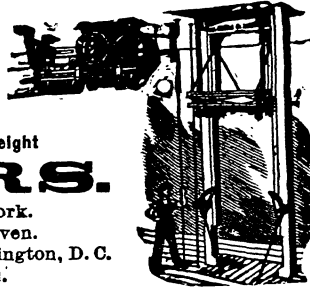
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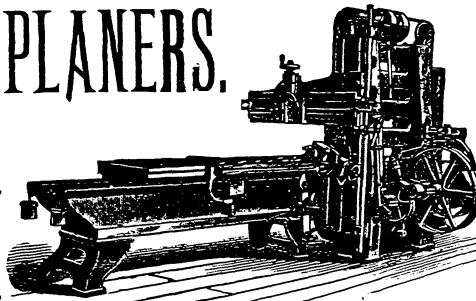
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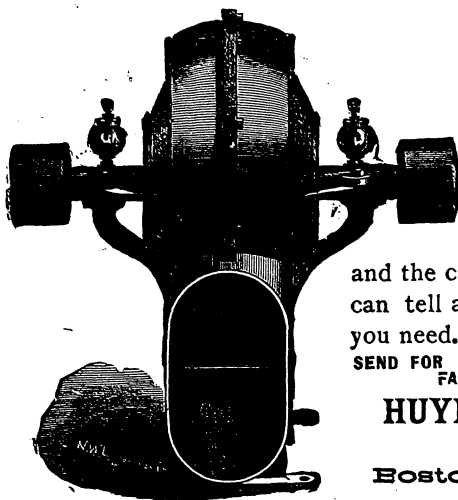
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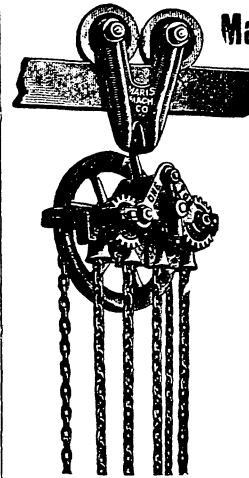
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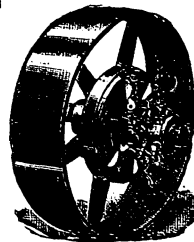
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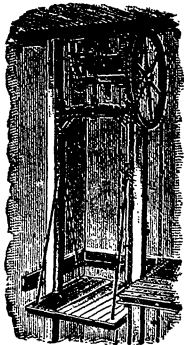
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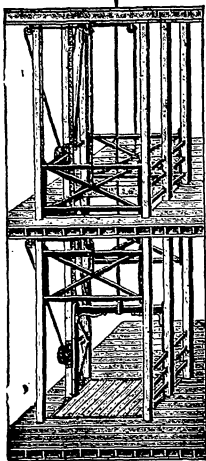
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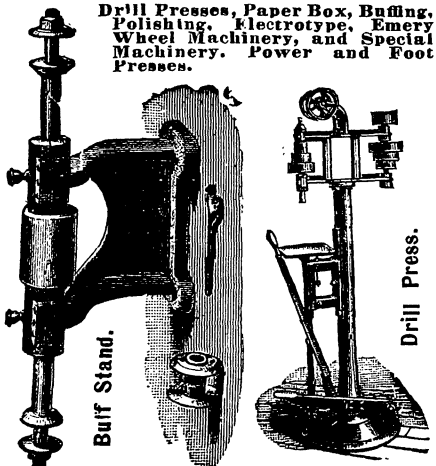
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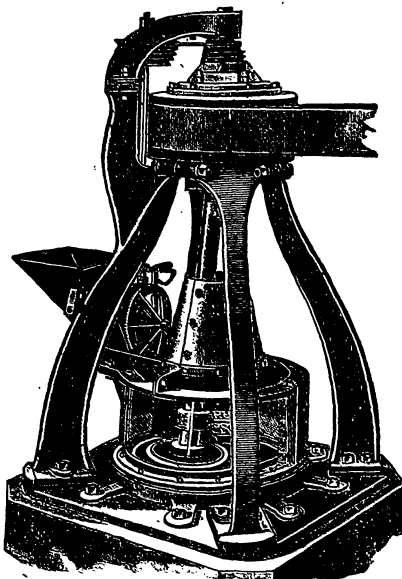
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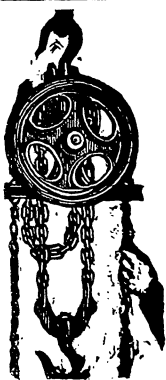
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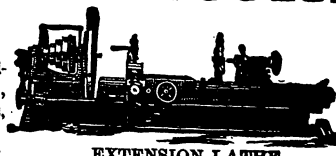
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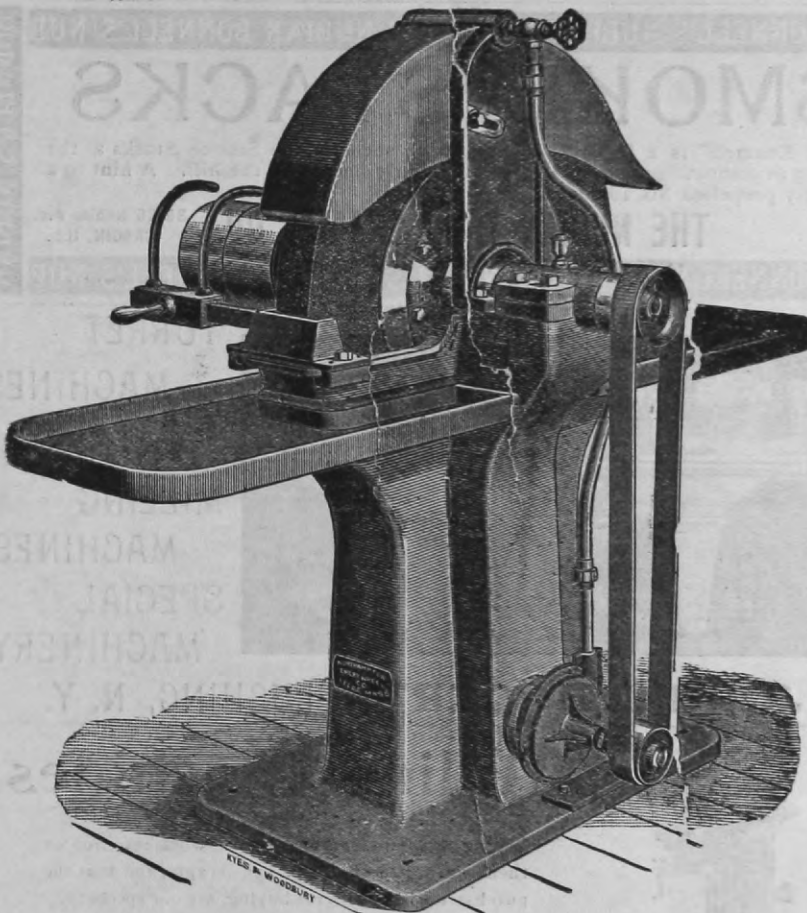
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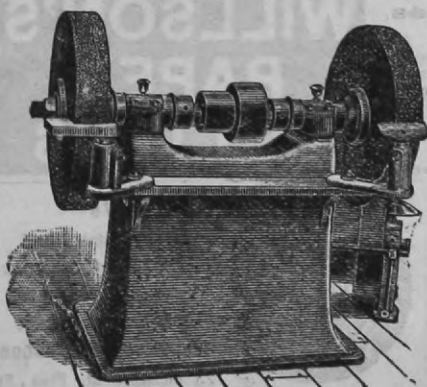


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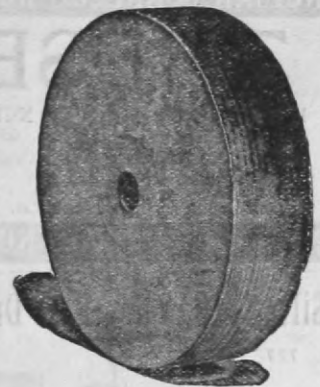
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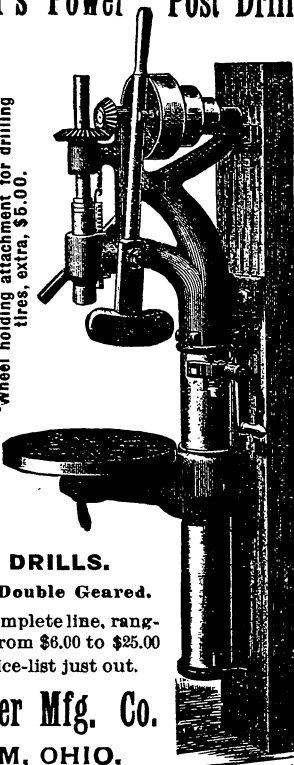
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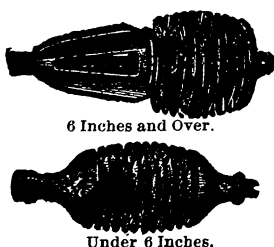
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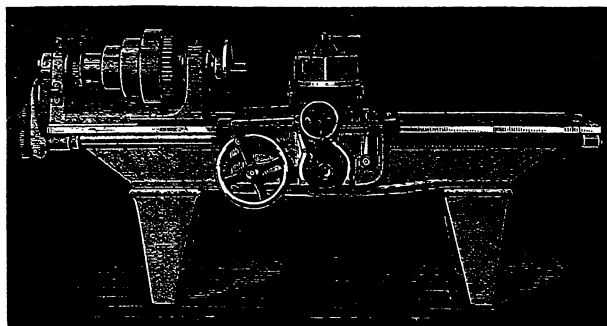
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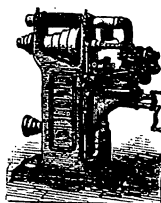
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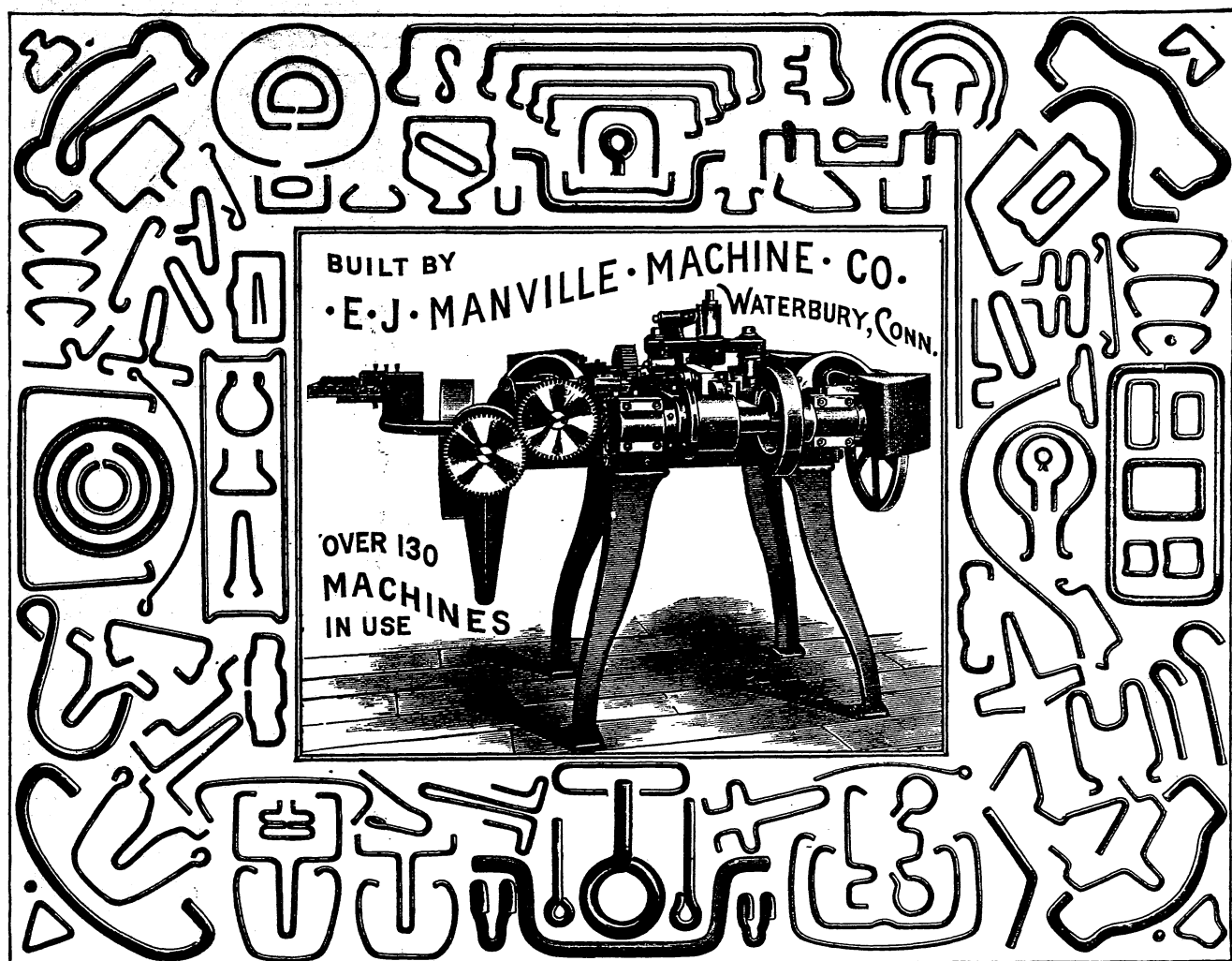


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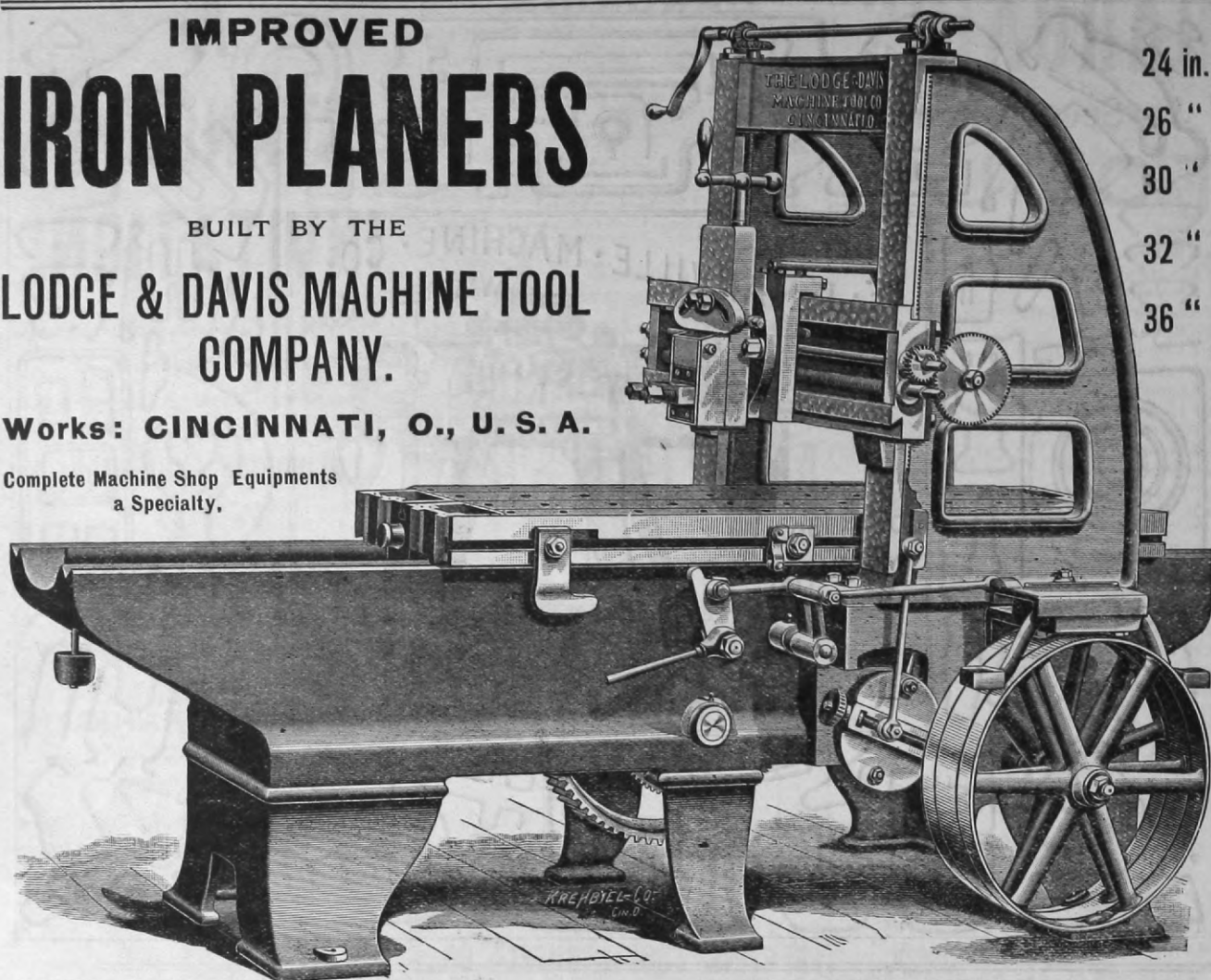
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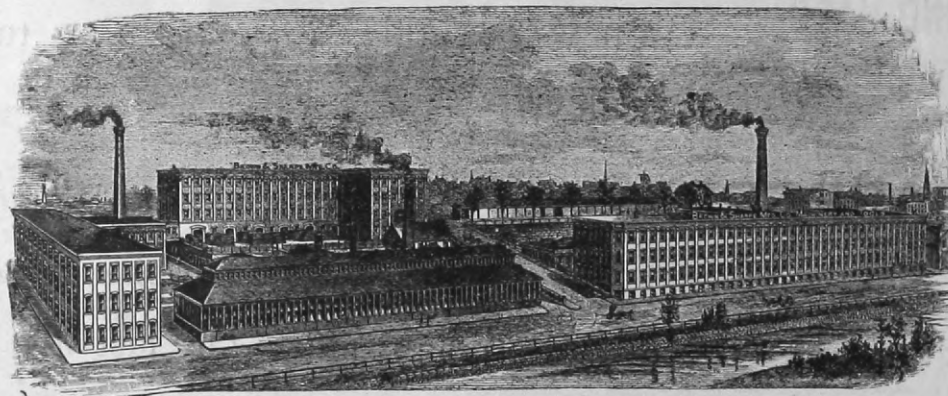
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2 Double Deck Boilers about 40 H.-P. each, cheap. Hoisting Engine. Cylinder Boilers for Stacks, 30, 40 and 42 in. diameter. Round and Square Iron Tanks. Book Binding Machinery. Smoke Stacks, light and heavy, all sizes. Large lot Cast and Wrought Scrap Iron on hand. Also Dealers in Metals.

BUSSENIUS & CUNLIFFE,
12th and Washington Ave., Philadelphia.

Write us for Bargains.

J. STEPTOE & CO., Cincinnati, O.

25 lb. section iron T Rails in good condition for relaying.

WM. H. PERRY & CO.,
Providence, R. I.

Foundry Contracts to be completed before September 1st. Capacity of works, 9 tons per day. Can make close prices and prompt shipment.

FRANK C. PATTEN CO.,
Sycamore, Ill.

Compound Pumping Engine.

Made by Cuyahoga Steam Furnace Co., Cleveland, Ohio. Eight million gallons capacity per day. Engine is now in use and is in good order, but soon to be replaced by a larger engine. Address for information, &c.,
A. I. SANGER & HARRIS BROS.,
Cleveland, Ohio.

Eight Steam Cranes, 24 Iron Ore Buckets, 24 Trucks and 8 Overhead Dump Cars, all of which have had very little use and are in good condition; can be seen in Cleveland.

Andrews, Hitchcock & Co.,
420 Perry-Payne Building,
Cleveland, O.

If so, come to **Kokomo** and get free gas for fuel and light for all factory purposes, free land for your factory sites. Shipping facilities the very best, and every point of advantage a business man can ask in a wide-awake, modern city of 15,000 population, in the heart of the great **Gas belt** of Indiana. Write for catalogue.

Makers: Gould & Eberhardt.
Splendid condition; low price; good value.

A 16 in. x 8 in. Hendey Lathe.
Used but a short time.
A splendid tool.
A good purchase.

The Scranton Supply and Machinery Co.,
Scranton, Pa.

31 four-wheel, 5-ton Lime Cars, cheap. Address

Office of *The Iron Age*, 220 South 4th St.,
Philadelphia, Pa.

50 tons of 56-pound, 150 tons 60-pound and 200 tons of 50-pound second-hand Steel Rails, suitable for relaying. For prices, &c., address

J. H. RICHARDSON & CO.,
Pittsburgh, Pa.

Nos. ¼, ½, 1, 6 and 7 Root's Pressure Blowers, in A1 order and cheap.
Also 15 horse-power Greenfield Upright Engine, good as new.

COOKE & CO.,
163 and 165 Washington St., New York.

EXECUTOR'S SALE OF VALUABLE IRON WORKS

At Auction,

Wednesday, July 19, 1893,

At 11 o'clock A.M., on the premises, NEWPORT, KY.

The Anchor Iron & Steel Works and

The American Bolt & Nut Works.

This splendid property has an entire frontage of 500 feet on Front street, Newport, Ky., with a depth of over 400 feet to the Ohio River.

The Rolling Mill has a capacity of 6000 tons of bar and 1400 tons of light or steel sheet per year.

The Bolt and Nut Works have a yearly business of about \$500,000. Both plants are in complete running order and now running to their full capacity. They include engines, roll and sheet mills, bolt and nut machines, &c., &c. A complete outfit for operating the works.

These valuable plants will be sold as an entirety, without appraisement, to the highest bidder on easy terms, to close the estate of L. M. Dayton, deceased. If you wish to examine the property, or for further details, apply to the undersigned at Cincinnati, Ohio.

WM. V. EBERSOLE & CO.,

Agents and Auctioneers,

N. W. Cor. Fourth and Sycamore Sts.

JOHN W. HERRON, Executor.

RECEIVERS' SALE.

The Receivers of the Maryland Manufacturing Company, appointed by Circuit Court No. 2 of Baltimore, Maryland, will sell at private sale cheap the entire plant, buildings, &c., of said company, consisting of two brick manufacturing buildings on a lot 80 x 90 feet, subject to a ground rent of \$480 per annum; 14 rivet machines, complete machine shop, electric light plant and all machinery and appliances to make complete line cold pressed rivets. Capacity about 3 tons per day. Ready for immediate operation. Apply to

WILLIAMS & WILLIAMS,

Attorneys for Receivers,

Equitable Building, Baltimore, Md.

UNUSUAL OPPORTUNITY.

Iron Foundry For Sale.

Situated at the corner of Van Pelt avenue and Leonard street, in the city of Brooklyn. Lot 155 feet on Van Pelt avenue and 230 feet on Leonard street.

Sale under the direction of Frederick P. Belamy, Referee, on the 7th day of July, 1893, in the rotunda of the County Court House, in the city of Brooklyn, at 12 o'clock noon. For further particulars inquire of

MAN & MAN,

56 Wall St., New York.

BESSEMER IRON ORE LAND.

An opportunity is open to a strong syndicate or wealthy capitalist interested in iron and coal to obtain ultimately without cost an interest in the largest and best body of hematite iron in the United States. According to report of U. S. Geologist, the ore in sight above ground is worth more than \$400,000,000. This tract, containing thousands of acres of iron and coal land, is located near a river and near one of the prominent railroads of the country. Every facility exists for making an immense fortune for the party who will take an interest and furnish money for development. For full particulars address the owner,

O. R. BURCHARD, Denver, Col.

WANTED.

A competent man as Superintendent in a branch of the iron and steel industry. One acquainted with rolling mill and other machinery, and who would loan \$15,000 and have an interest in the business. This is a favorable opportunity for the right party. Address

"PRINCIPLE,"

office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

First-class Builders' Hardware firm in each city to take the exclusive agency for Howarth's Patent Sash Centers. Ten hundred and sixty sets have been used on one building. Architects are specifying them repeatedly; over 100 buildings have been supplied. Large discounts. Address

Howarth Reversible Sash & Sash Center Co.,

Detroit, Mich.

FOR SALE.

One pair large heavy Plate Steel Pyramid Rolls, 9 in. x 100 in. inside the housings. New and never been used.

P. O. BOX 254, Pittsburgh, Pa.

FOR SALE.

A very valuable U. S. Patent for a Gas Furnace. It gives a complete combustion of the gas and prevents the tar from condensing before going into the furnace. It is very economical and inexpensive, and can be put into any existing furnace or boiler. It has been in practical operation for three years and can be seen at any time. Inventor has had practical experience with furnaces for 30 years. All further particulars can be had on application to

JOHN ELLIOT, Ansonia, Conn.

Any Company

contemplating the expenditure of a large amount in the establishment of a manufacturing industry, requiring the use of a thoroughly equipped Machine Shop, Boiler Shop, Foundry and Smith Shop plant, well located on competing trunk lines of railroads and in a good labor market, is invited to address

STIMSON, WILLIAMS & CO.,

Bryant Building, 55 Liberty St., New York.

FOR SALE OR RENT.

Manufacturing Property.

Having purchased the Auburn Manufacturing Company's plant, with greater facilities for manufacturing carriage forgings, which my increasing trade demands, I offer my former plant for sale or rent, which consists of two-story stone and wood building, 60 x 30, and three-story stone and brick building, 75 x 40. Also forge shop, 22-ft. posts, 150 x 54, with large double windows between each bent. 50 x 30 boiler house. Splendid water power, 11 ft. head.

One 64-in. American Turbine.
One 24-in. Little Giant Turbine.
200 ft. 2 1/2 Cold Rolled Iron Shafting.
40 ft. 2 1/2 Cold Rolled Iron Shafting.
80 ft. 2-in. Cold Rolled Iron Shafting.
Furnished with self-oiling boxes. Water wheel governor; 4-ton Buffalo Scales. The premises cover about 2 1/2 acres. Shipping facilities of the best. Located near N. Y. Central and Philadelphia and Reading depots. Will be sold cheap and on easy terms or rented. For particulars address

RICHARD ECCLES, Auburn, N. Y.

WANTED.

Responsible parties to manufacture and sell on royalty a cheap portable steel or iron **CULVERT BRIDGE**; it is adapted to all small streams, runs, etc., in roads, streets, **RAILROADS**, etc.; improved roads is the order of the day; use this bridge, put it below the level of the road, cover it over and thus prevent jarring and wear and tear of vehicles, etc. Apply to

W. A. NICHOLS,
Girard Building, Philadelphia, Pa.

Any Manufacturer

of Hardware or Machinists' Specialties desiring to be represented in New York City and vicinity, will find it to his interest to address

E. J. HUSSEY & CO.,

80 John St., New York.

We are centrally located, active workers and can furnish best of references.

EUGENE BISSELL, Auctioneer.

E. BISSELL, SON & CO.,

Successors to

HAYDOCK & BISSELL,

WHOLESALE

HARDWARE AUCTIONEERS,

12 Murray St. and 15 Park Place, N. Y.

Sales held weekly for the trade. Consignments solicited. We refer to the leading manufacturers and importers.

FOR SALE.

One of the best paying and most desirably located Hardware stores in Philadelphia. Modern fixtures and clean stock. Address "MODERN," office of *The Iron Age*, 96-102 Reade St., N. Y.

WANTED.

A machine to perforate tin sheets for IC and IX tin, 14 in. x 20 in. or longer, perforating round holes from No. 1 to No. 7 inclusive. We will receive bids for a machine of the latest improved style, to perforate and finish such sheets. Or would like to hear from a man who can make such improved machine and can run the same. Address "PERFORATING," office of *The Iron Age*, 96-102 Reade St., N. Y.

BICYCLE MANUFACTURING PLANT FOR SALE.

Located in a prominent Western city and adapted to the manufacture of bicycles of any grade. Capital required, \$75,000 to \$100,000. Good orders for season of 1894 assured. For particulars apply to

THE R. M. CO.,

P. O. Box 31, Cincinnati, O.

FOR SALE.

Combination Steam or Hot Water and Hot Air Heater.

Will sell Patent, with full set of patterns, core boxes, fallow boards and iron flasks for five sizes heaters; or will sell patterns, flasks, &c. and patent for special territory and retain balance of territory. Purchasers to manufacture and sell the heaters in territory they buy, and sell me heaters for territory I retain. Heater has more good talking points than any other; meets with ready sale. Good profits in it by selling to the trade. Will bear investigation and prove profitable to company having foundry and boiler shops. Have catalogue, cuts and have many good testimonials from those using the heaters. Immediate possession of patterns and flasks given, and will contract for a number of heaters now for fall trade. Satisfactory reason for selling. Address "HOT AIR HEATER," No 629, office of *The Iron Age*, 96-102 Reade St., N. Y.

FOUNDRY AND MACHINE SHOPS.

For Sale or Rent. Rare Opportunity.

As I do not care to continue the foundry business, I offer for sale or rent my Foundry and Machine Shops at Tunkhannock, Pa. Shops conveniently located to thriving mining and farming towns; a few rods from L. V. R. R. station. A very good business for the right party. Call or address

MRS. E. M. GEARHART, Executrix,
Tunkhannock, Pa.

FOR SALE TO CLOSE AN ESTATE.

Fine Hardware, Stove, Tinware and Plumbing Business.

In a growing Western town; doing a first-class retail and jobbing business. Stock will inventory about \$35,000. A rare chance, as present owners have been liberal advertisers. Only those who mean business need apply. Address

"M. & M.,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

AMERICAN MANUFACTURERS

of Hardware Specialties and Machinists' Tools, who are willing to place the sale of their goods in the hands of an old hardware firm of the highest standing whose salesmen cover the entire United States, will please communicate with

"W. F. & B.,"
office of *The Iron Age*, 96-102 Reade St., N. Y.

Factory Sites Free.

At Keyport, N. J. Twenty miles from New York, on Raritan Bay. Boat and train communication with New York and other markets; water works and other advantages. Reasonable inducements to responsible manufacturing concerns. Address

KEYPORT BOARD OF TRADE.

Collections?

ATTENTION! Merchants and Manufacturers.—We collect your past due accounts. Do not let them remain too long upon your books. Our terms just and fair.

THE HARDWARE BOARD OF TRADE, Ltd.,
4 and 6 Warren street, New York.
JAS. H. GOLDEY, Treas.

CHARLES WEILAND.

I make a special business of buying and selling Job Lots of

HARDWARE AND CUTLERY.

Tools and Second Quality Files a Specialty.

Send for Catalogue,

143 Chambers St., New York.

A RARE OPPORTUNITY.

Wanted, a thoroughly competent and reliable hardware man to purchase a part of the interest of one of the owners in a wholesale and retail hardware business. The house does a business of over \$300,000 yearly. Located in a city of over 100,000 population. Has several salesmen on the road. Business established in 1875; incorporated with paid up capital of \$150,000. Reason for selling a part of the stock, ill health. To a party who is capable and satisfactory, an interest in the business can be obtained, and be placed in an important office in the corporation with salary. Address

S., Post Office Box 237, Topeka, Kansas.

WANTED.

To furnish reasonable estimates on specialties in light metal work.

CLARK & COWLES, Plainville, Conn.,
Manufacturers of Clock Trimmings, Rivets, Springs &c.

Copartnership Notice.

The Copartnership heretofore existing between the subscribers under the firm name of **HAYDOCK & BISSELL**, is this day dissolved by mutual consent.

Mr. R. R. HAYDOCK retires to assume the position of sales agent of the Bethlehem Iron Company, in charge of their office, at No. 421 Chestnut St., Philadelphia.

Mr. EUGENE BISSELL continues the Auction and Commission Business, at Nos. 12 Murray street and 15 Park Place, New York, in connection with Mr. E. V. N. BISSELL and Mr. FRANK VAN NAME, under the firm name of

E. BISSELL, SON & CO.

The new firm assumes all the assets and liabilities of the old firm.

Thanking our friends and the Trade for the business entrusted to our care in the past, and bespeaking for the new firm the confidence which has heretofore been extended to us, we are,

Respectfully,
ROBERT ROGER HAYDOCK,
EUGENE BISSELL.

Nos. 12 Murray St. and 15 Park Place,
New York, June 30, 1893.

Three or Four Large Planers

for iron wanted, from 48 inches up to 10 feet clear width. State cash price, new or second hand. Address **JOSEPH JONES**,
141 Center St., New York.

FOR SALE.—A good established hardware business; the only one in a growing village in Alleghany County, N. Y.; doing good business. Must sell on account of health. Address "R." Box 76, office of *The Iron Age*, 96-102 Reade street N. Y.

REMOVAL.

The Frasse Company, after occupying their old stand at 92 Park Row for upward of 50 years, have removed to 19 Warren St., near Broadway, where they will carry a large and varied assortment of Tools for every branch of the Mechanical Trades. A specialty is their line of Cycle Repairers' Tools. Chesterman Tapes, Stub's Goods and Fischer Files are some of the specialties they sell.

LAMBERSON'S

Old Reliable

HARDWARE PRICE BOOKS

Send for new Illustrated Circular.

BUELL LAMBERSON,

PORTLAND, OREGON.

KEEP BOOKS

by WEST'S New Original-ENTRY LEDGER.

Make the same entry but once. A Ledger in place of a full set of books. Convenient forms for all entries. Easily applied, simple, saves time. West's Self-Proving Balance locates every error. Send 3 2-cent Stamps for illustrated 16-page pamphlet.

WOLCOTT & WEST, Syracuse, N. Y.

\$99.50 FREE.

For 50c. I will send you a pamphlet containing 50 well written advertisements, each of which is worth easily \$2.00. If you want to catch the trade of your town send 50c. in stamps and get pamphlet by return mail.

Thousands already in use.

J. A. DUFFY, - 118 Main St., Hannibal, Mo.

PLAIN CASTINGS,

Weighing from 5 to 20 pounds each, can be bought at low prices for delivery during summer. Write for prices, naming quantity, and send sample of what is wanted.

WRENN, WHITEHURST & CO.,
Norfolk, Va.

C. F. RICE,

206 So. Green St., - - CHICAGO.

Largest wholesale house in America for Mirrors of all kinds, Pictures, Mouldings, Frames, Brackets, Easels, Screens and kindred goods. Large illustrated catalogue sent to Dealers upon application.

NEW ENGINE LATHES For Sale Cheap.

13 in.	} ANY LENGTH OF BED.
15 "	
17 "	
20 "	
22 "	

Draper Machine Tool Co.,

Successors to

LATHE & MORSE TOOL CO.,

130 Gold Street.

WORCESTER, MASS.

BLOWING ENGINE FOR SALE

Vertical pattern, with balanced steam slide valve gear, steam cylinder 14 in. diameter, air cylinder 40 in. diameter, stroke 24 in. 1 to 100 strokes per minute; engine new.

JAMES LEFFEL & CO., Springfield, Ohio.

SITUATIONS WANTED.

*Undisplayed Advertisements for
Situations Wanted not exceeding fifty
words Fifty Cents each insertion.
Additional words one cent each.*

CHEMIST, favorably known in iron and steel circles, with a thorough metallurgical education and large experience in the manufacture of steel, blast furnace and foundry work, and who has a reliable method for the grading of foundry irons, is open to an engagement, preferably with a large furnace company. Address "METALLURGIST," office of *The Iron Age*, 96-102 Reade St., New York.

BY EXPERIENCED builders' hardware Salesman, a position in the East, either traveling or city work; familiar with figuring from plans and specifications; can furnish highest recommendation from former employers with whom he was associated for 12 years; open for contract at once. Address "HARDWARE," 51 Church St., Saratoga, N. Y.

AS SALESMAN, in or outside trade (hardware), having had 17 years' experience in a saw factory and eight years' in hardware house (especially tools); understand mechanical drawing; 38 years of age. Address **GEO. LIMKEY**, care of George L. Norris, 222 West Second St., Wilmington, Del.

OPEN-HEARTH MELTER.—By thoroughly practical Englishman; experienced in basic and acid steel smelting. Address "BASIC AND ACID," office of *The Iron Age*, 96-102 Reade St., New York.

FURNACE FIRE BRICK LAYER, with 15 years' experience, wishes a situation in a puddle, plate or sheet mill; understands building all kinds of furnaces and setting boilers; references given. Address "W. H. H.," Box 76, office of *The Iron Age*, 96-102 Reade St., N. Y.

BY A MAN having been engaged in commission steel and iron business. Address "MAN," office of *The Iron Age*, 220 So. 4th St., Philadelphia, Pa.

BY AN EXPERIENCED foundryman, as Manager, Superintendent or General Foreman; A1 references furnished. Address "W. W.," Berwyn, Ill.

MECHANICAL ENGINEER or Chief Draftsman; experienced in pattern shop, foundry and machine shop practice, structural iron work, hydraulic and general engineering, superintendence, &c.; now open for engagement. "WORKER," office of *The Iron Age*, 96-102 Reade St., New York.

AS SUPERINTENDENT or Foreman in open-hearth steel plant; well up in all grades of steel, and can give the best of references as to ability, experience and steadiness; will be open for engagement in six weeks. Address "HEARTH STEEL," office of *The Iron Age*, 96-102 Reade St., New York.

WANTED, by an experienced Salesman, a small line of hardware specialties for New York, Boston, Philadelphia and Baltimore; have other good connections and well acquainted with the trade. Please address "YOUNG BLOOD," office of *The Iron Age*, 96-102 Reade St., New York.

AS SUPERINTENDENT, by a man thoroughly posted in modern shop methods and the designing of special tools for the cheap production of interchangeable work; can control the manufacture of a lathe on which I hold U. S. patents if desired; best of references. "INVENTOR," office of *The Iron Age*, 140 Franklin St., Boston.

AS MANAGER BESSEMER STEEL WORKS. The advertiser, John Facer, late of Hampton & Facer's Special Steel Works, Maryport, England, wishes to meet with a situation. He understands all tempers of carbons, silicon and manganese from tin bar upwards, and has had 30 years' practical experience. Address office of *The Iron Age*, 220 South 4th street, Philadelphia.

AN EXPERIENCED hardware Salesman desires a position to travel in the South for hardware jobber or cutlery manufacturer; references furnished; open for contract beginning September 1, 1893. Address Box 29, Concord, North Carolina.

CHEMIST, experienced in iron analysis, open to engagement; willing to assist in work outside of laboratory; highest references. Address "IRON ANALYSIS," office of *The Iron Age*, 96-102 Reade St., New York.

ROLL TURNER.—A thoroughly experienced Roll Turner wants a position; 30 years' experience in all classes and shapes in iron and steel; best of references given. Address "ROLL TURNER," No. 622, office of *The Iron Age*, 96-102 Reade St., New York.

AS FOUNDRY FOREMAN; am well up in all foundry practice; have had large experience in the handling of men; am strictly temperate; references present employers. Address Box 100, Leeds Station, Sioux City, Iowa.

MECHANICAL ENGINEER, now superintendent of a manufacturing establishment, will be at liberty by June 1st to accept a similar position; 15 years' experience in hydraulic and general engineering, wrought iron and steel in construction, transmission of power, &c. Address "TRANSMISSION," office of *The Iron Age*, 96-102 Reade St., New York.

HELP WANTED.

*Undisplayed Advertisements for
Help Wanted not exceeding fifty
words One Dollar each insertion.
Additional words two cents each.*

EXPERIENCED SALESMAN on commission, in West and South preferred, to represent first-class manufacturing concern making light kitchen utensils. "KITCHEN UTENSILS," office of *The Iron Age*, 96-102 Reade St., New York.

A MAN thoroughly acquainted with the trade to travel, handling our self-pouring oil can. Address **PAINÉ, DIEHL & Co.**, Philadelphia.

A SUPERINTENDENT to take charge of a manufacturing enterprise; goods manufactured consist of heavy wagons, agricultural implements and special iron work; applicant must be good draftsman familiar with both wood and iron working machinery and experienced in handling men. Address, giving references and stating salary expected, **A. BALDWIN & Co.**, Limited, New Orleans, La.

A THOROUGH business man to take charge of malleable iron foundry of 125 molders, Address "MALLEABLE," Box 622, office of *The Iron Age*, 96-102 Reade St., New York.

MANAGER WANTED.—A company now manufacturing one of the leading high grade bicycles in the country, desire to negotiate with a competent, experienced man to take the position of practical manager of their factory; a man possessing all the necessary qualifications will find it to his advantage to correspond with "BICYCLE," office of *The Iron Age*, 96-102 Reade St., New York. All letter will be considered confidential.

IMPROVED EDITION OF THE IRON AGE HARDWARE PRICE BOOKS.

Arranged by R. R. WILLIAMS, Hardware Editor of the Iron Age.

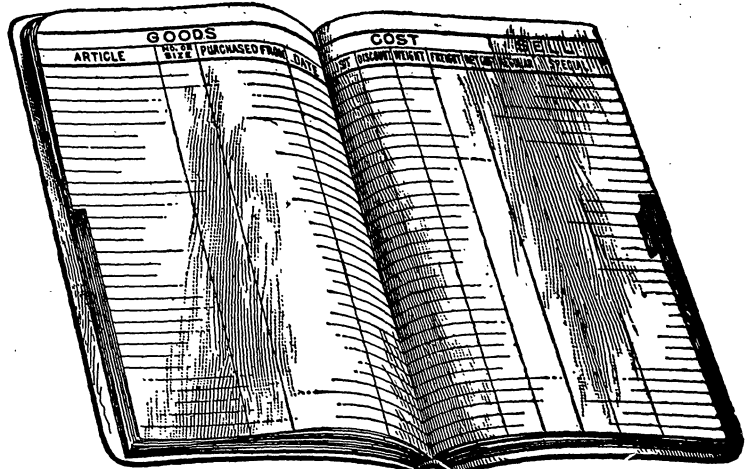
These Books are printed on paper of superior quality and bound in grain seal leather.

Columns are provided for the name and number or size, for noting from whom purchased, date of quotation or purchase, list and discount, and for entering freight expenses as an element of cost. Under the heading of selling prices, the regular and any special price or remarks in regard to the goods are given place. This book goes into considerable detail in describing the goods and cost prices. It has been arranged in accordance with the views of many Hardwaremen whose methods are careful and exact.

Size, 4 x 7 in.; grain seal leather.

FOUR EDITIONS:

A, 200 pages, - - - - -	\$1.00
A F, 200 pages with flap, - - - - -	1.25
A 2, 400 pages, - - - - -	1.50
A F 2, 400 pages with flap, - - - - -	1.75



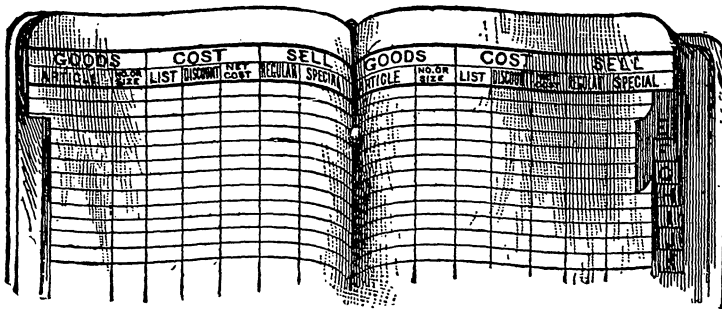
Hardware Price Book A.

In this book each page is complete, and the record of prices does not, as in Book A, run across two pages. Thus it accommodates a larger range of goods with much less detail in the record. It is adapted for office or store use, and by the use of familiar abbreviations, sufficiently large for the convenient and concise record of prices.

Size, 4 x 7 in.; grain seal leather.

FOUR EDITIONS:

B, 200 pages - - - - -	\$1.00
B F, 200 pages with flap, - - - - -	1.25
B 2, 400 pages, - - - - -	1.50
B F 2, 400 pages with flap, - - - - -	1.75



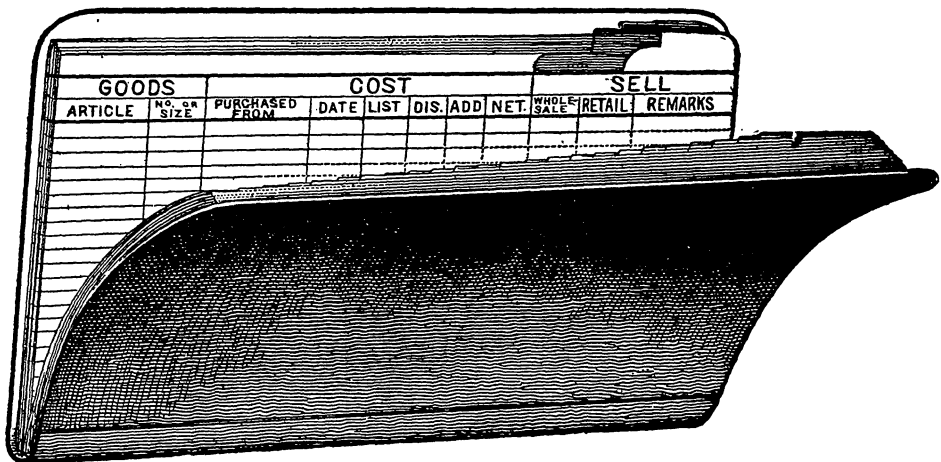
Hardware Price Book B.

The headings in Book C run across the top, in a line parallel with the hinge. In this way a very complete record can be kept on a single page. The details of weight and freight contained in Book A are omitted, and a single column headed "Add" given for the insertion of freight or other expenses which it is desirable to include in the cost. Under the selling prices space is left for the wholesale price, the retail price, and also for any remarks in regard to cost of the goods, desirability of pushing them, or other matters.

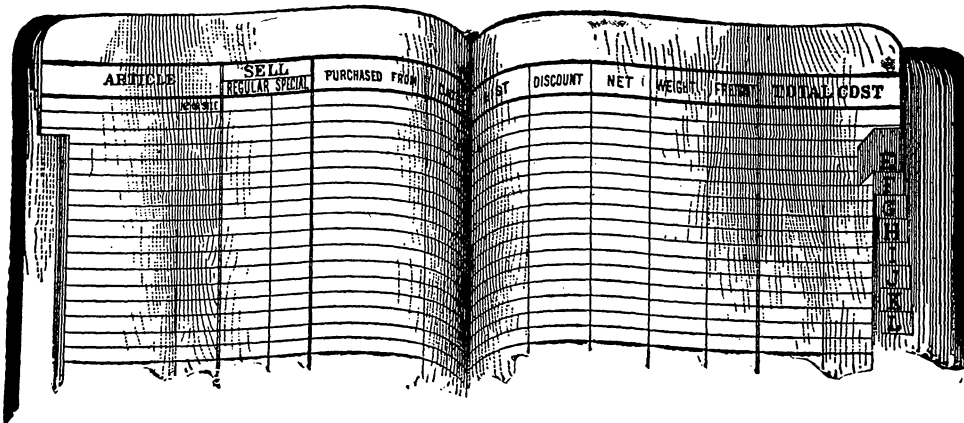
Size, 4½ x 7½ in.; grain seal leather.

FOUR EDITIONS.

C, 200 pages, - - - - -	\$1.00
C F, 200 pages with flap, - - - - -	1.25
C 2, 400 pages, - - - - -	1.50
C F 2, 400 pages with flap, - - - - -	1.75



Hardware Price Book C.



Hardware Price Book D.

Arrangement is adapted to the requirements of the trade in this direction.

Size 5½ x 8 in.; grain seal leather.

FOUR EDITIONS.	D, 200 pages, - - - - -	\$2.00
	D F, 200 pages, with flap, - - - - -	2.50

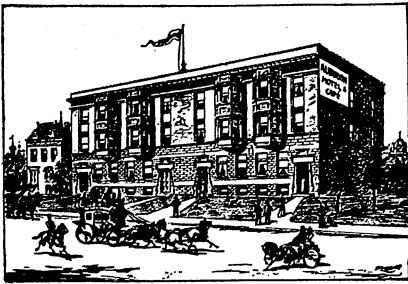
	D 2, 400 pages, - - - - -	\$2.00
	D F 2, 400 pages, with flap, - - - - -	2.50

Price Book D will recommend itself particularly for desk and store use, and for salesmen on the road.

The name of the article, its number or size and the selling price are the first to meet the eye on the left-hand page, as embodying information desired when the selling price is required. The other headings follow in convenient order, by which a detailed memorandum regarding the goods may be kept, the whole being seen at a glance. A number of pages at the back of the book are arranged for memoranda, which will be found a great convenience. This ar-

Sent, post-paid, on receipt of price by **DAVID WILLIAMS, Publisher, 96-102 Reade St., New York.**

THE :: AUDUBON,



EUROPEAN HOTEL.

Fine Café at Moderate Prices.
Midway Plaisance and Oglesby Ave., CHICAGO.
Stone and Brick, Permanent and Safe.

N. H. HENCHMAN, Jr., Mgr.

The Audubon has refined patronage and is sought by

The Hardware Trade, The Iron Trade, The Stove Trade, The Metal Trades.

The association of these lines is found to be of mutual advantage. The Audubon is within three minutes' walk of the main gate or any transportation. Our guests enjoy ample yard room and freedom. Rooms are light, airy and cheerful. Everything new, neat, clean and homelike.

RATES \$1.50 and up Per Day.

REFERENCES :

Commercial National Bank. Markley, Ailing & Co., Illinois Trust and Savings Bank, Fraser & Chalmers.

Send for catalogue with diagrams of floors, and other information and secure comfortable accommodation while you have the opportunity. We still have choice rooms for a good portion of the future Fair period.

IF YOU WANT A NIAGARA DYNAMO OR MOTOR

or if you are a dealer and want an Agency send for our Catalogue and Price-List.

LOVELL MFG. CO., LTD., ERIE, PA.

THE FORT W. HUNT & CO.

Bureau of Inspection, Tests and Consultation.

Rails, Splices and Cars. Analytical and Physical Laboratories. Examination of Iron and Steel Works and advice on Processes.

General Office: The Rookery, Chicago. Branch Offices: Hamilton Building, Pittsburgh; 28 Chestnut St., Philadelphia; 80 Broadway New York.

Wanted, Contracts

For building mining, blast furnace, rolling mill and factory machinery, for making castings for cable and electric railroads, or any special line of castings. Address

MAHONING FOUNDRY AND MACHINE SHOP

Danville, Pennsylvania.



Second Hand, Suitable for Relaying.
Cut to Lengths for Builders and Contractors.
Old for Scrap. Dealers in all kinds of Railroad Scrap. Correspondence solicited.
SCHWARZENBERG BROS. & CO.,
167 to 189 Scranton Ave., Cleveland, O.

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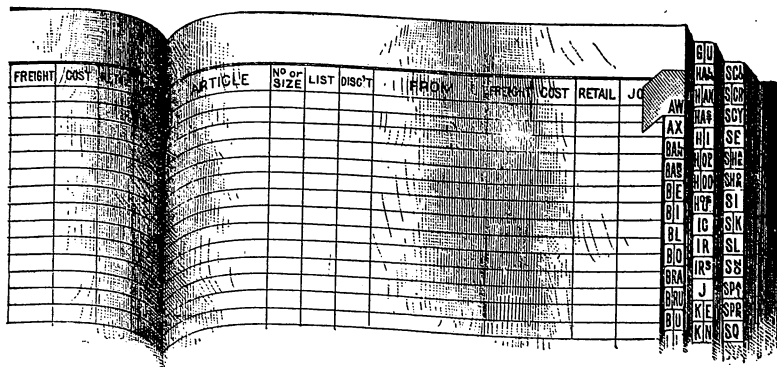
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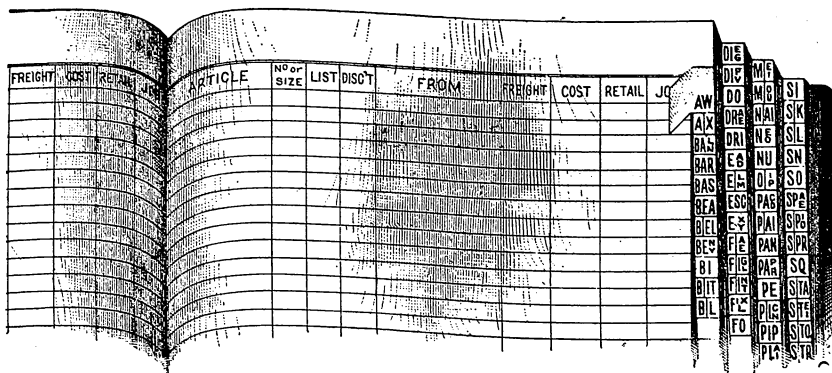
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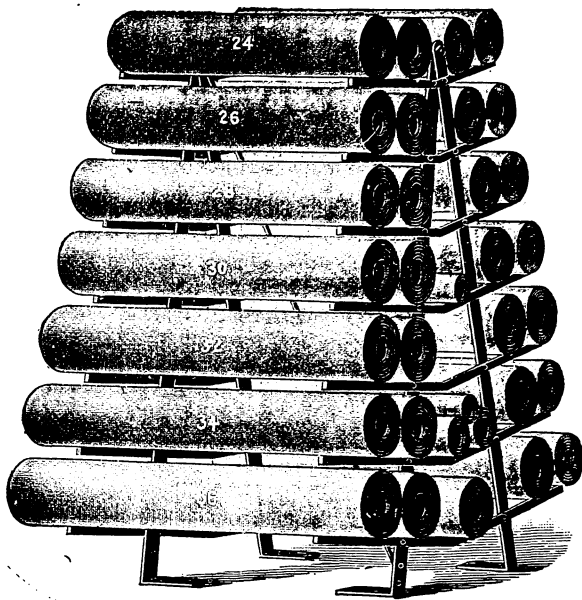
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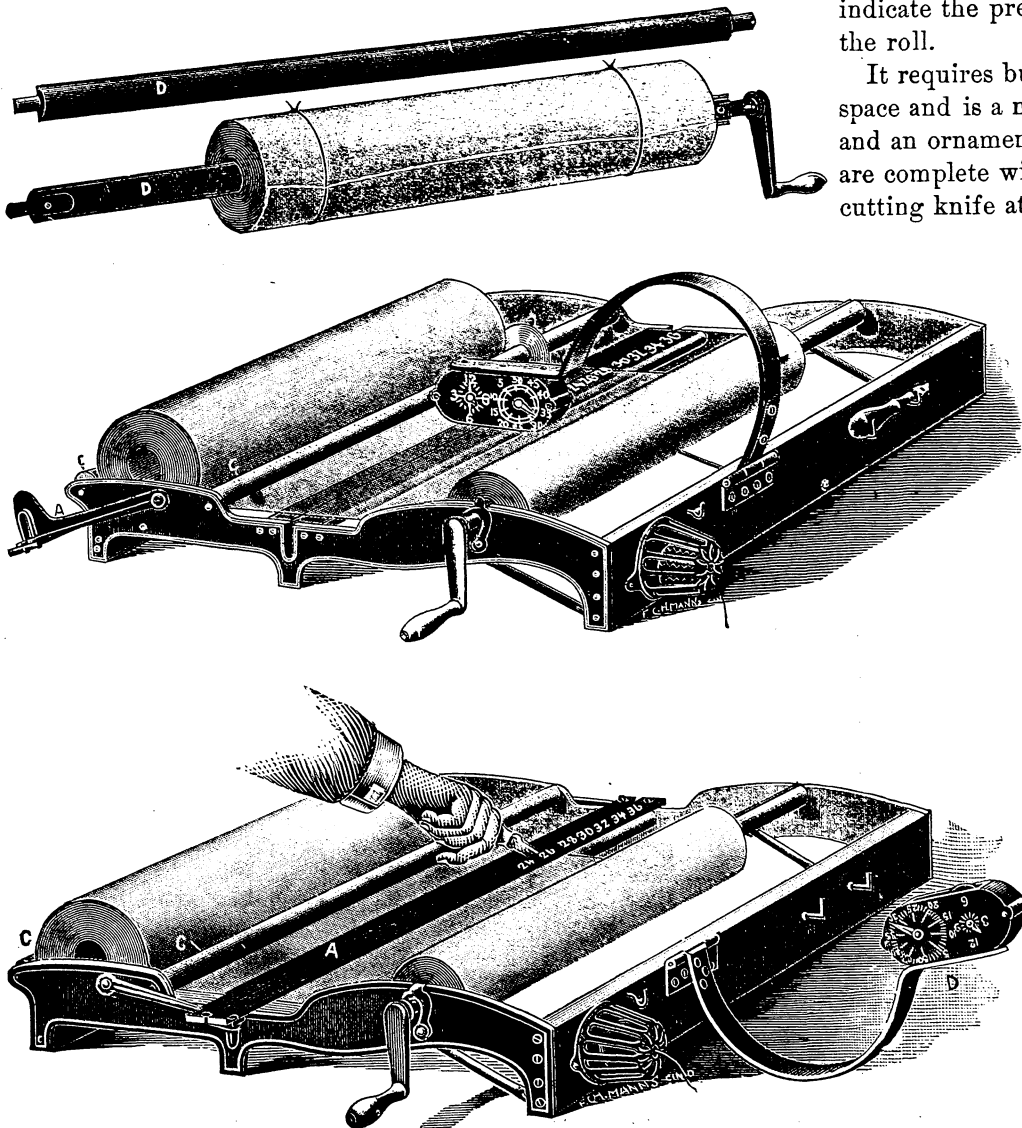
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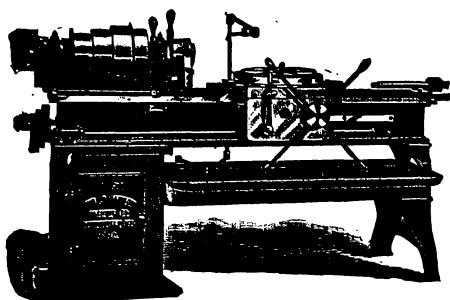
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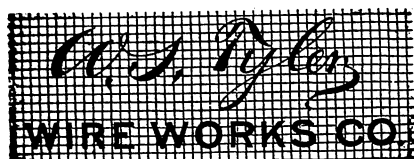
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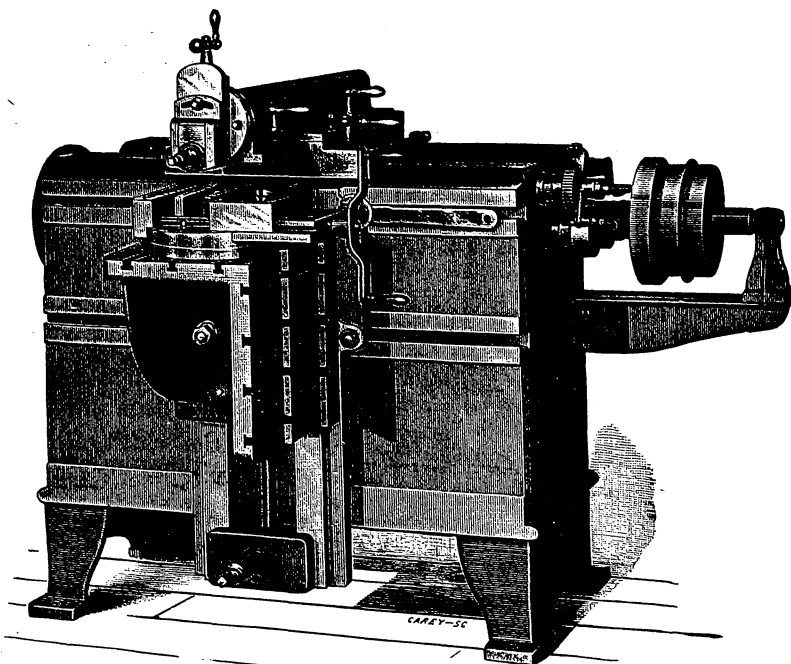
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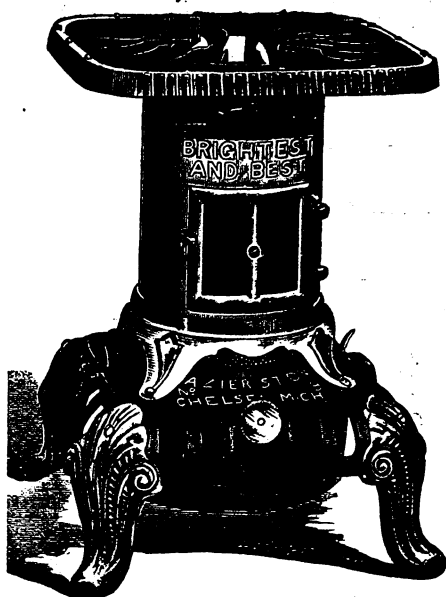
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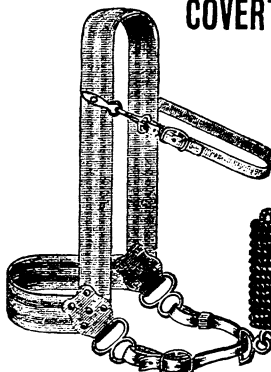


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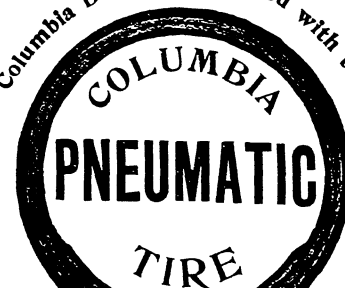
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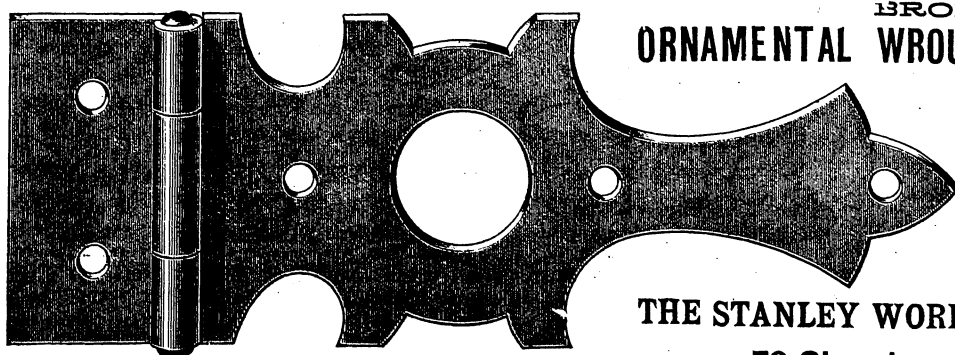


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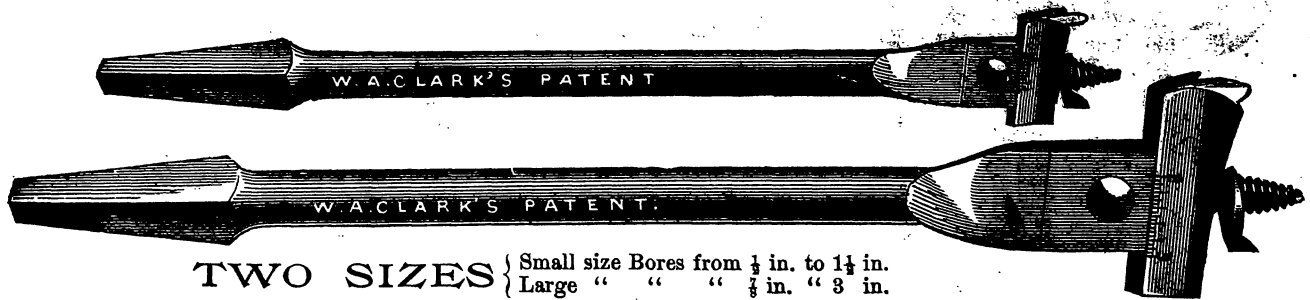
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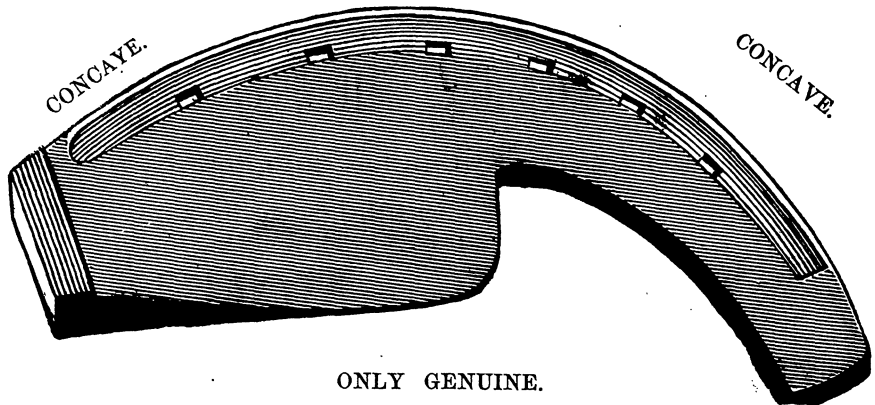
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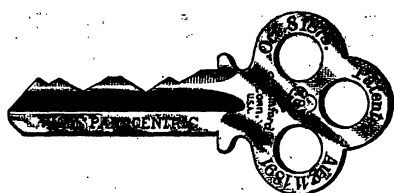
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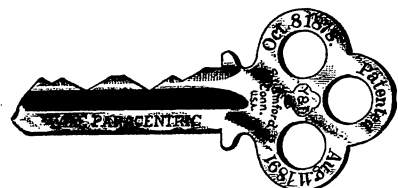
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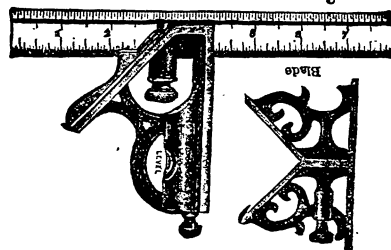
RUSSIA CEMENT CO.,

GLOUCESTER, MASS.

New York Office, 95 Reade and 113 Chambers Streets.

Pacific Coast Office, 23 Davis Street, San Francisco, Cal.

CHAPLIN TRY AND CENTRE SQUARE.



Also a full line of

MACHINISTS' FINE TOOLS.

If you haven't our 1893 catalog send us a postal card.

STANDARD TOOL CO.,

ATHOL, MASS., U. S. A.

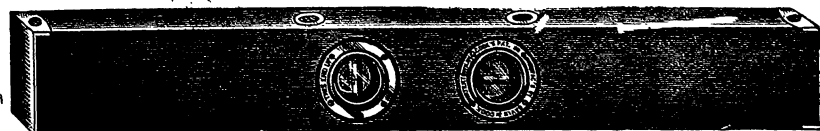
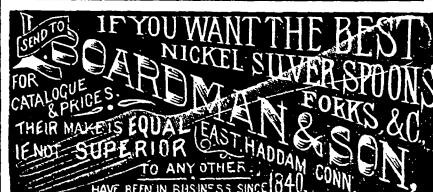
ATHOL MACHINE CO., Selling Agents.

JESSE JONES & CO.,**HARDWARE
SHELF BOXES**

Made of Wood.
No screws or
nails used to work
out and cut
your shelving.

615 Commerce St. Phila.

Send for circular and list of references.

**COOK'S
PATENT
LEVEL.**

Made in Wood and Iron. Every Level Fully Guaranteed.

Inquire at your nearest hardware store
for them. If not in stock, send toTAKE NO
OTHER.**DAVIS & COOK,**

WATERTOWN, N. Y.

L

W. & B. DOUGLAS, MIDDLETOWN, CONN.

Branch Warehouses: 85 and 87 John St., New York; 197 Lake Street, Chicago, Ill.

THE OLDEST AND MOST EXTENSIVE MANUFACTURERS OF

Pumps, Hydraulic Rams, Garden Engines,

Yard Hydrants, Street Washers, Galvanized Pump Chain, Wind Mill Pumps and other Hydraulic Machines in the World.

DOUGLAS' DIAPHRAGM PUMPS, "Loud Patent."

A LARGE CAPACITY, AND EASY WORKING PUMP FOR

Water Works, Sewer Contractors, Foundation Builders, Mines, Quarries,

Fig. 180.

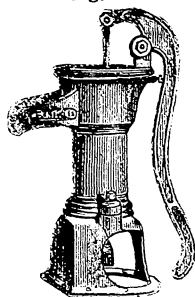
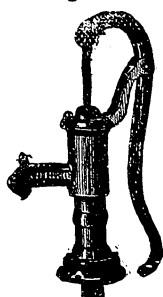


Fig. 70.



or wherever it is desired to raise a large quantity of water by hand power.

The pump has large valves (accessible by hand) and will pump water containing sand, gravel, sewage matter, &c., without choking or any perceptible wear.

Capacity from 3,000 to 4,500 gallons per hour.

These pumps are simple, durable and low priced.

Made either as shown in cut for Hose or for IRON Pipe Suction underneath.

Send for Circular and Price List.

Fig. 209.

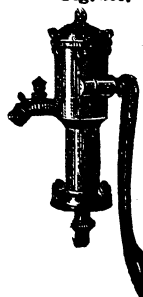


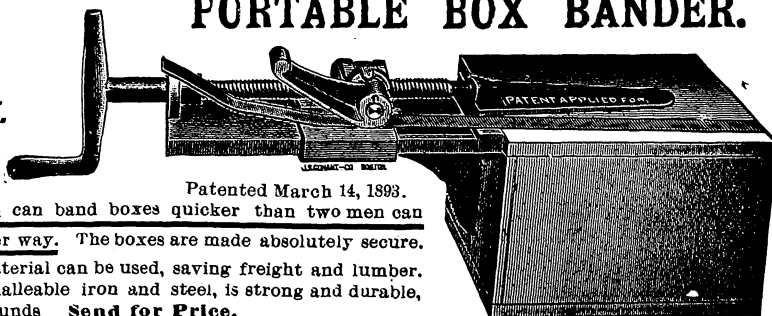
Fig. 381



THE DEMING CO.
FACTORY SALEM O.U.S.A.
MANUFACTURERS OF
HAND & POWER PUMPS, WELL SUPPLIES & C. VERTICAL STEAM PUMPING ENGINES.
N.Y. OFFICE: 72 JOHN ST.
HENTON & HUBBELL
GEN'L. WESTERN AGT'S: 55 & 57, N. CLINTON ST. CHICAGO, ILL.

SOON
PAYS
FOR
ITSELF.

PORTABLE BOX BANDER.



Patented March 14, 1893.
One man can band boxes quicker than two men can in any other way. The boxes are made absolutely secure. Lighter material can be used, saving freight and lumber. Made of malleable iron and steel, is strong and durable, weighs 8 pounds. Send for Price.

J. W. GOODELL, Manufacturer,

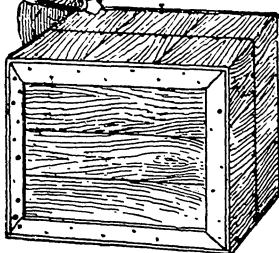
BURLINGTON, VT.

F.E. MYERS & BRO.

ASHLAND, O.
+ CATALOGUES FREE +
Ashland Pump and Hay Tool Works.

Lightning Band for Cases and Crates.

(COVERED BY U. S. LETTERS PATENT.)



Mounted on reels and always ready for use and convenient to handle. Easily and quickly binds shipping cases and crates in a neat, strong and substantial manner.

PRICES:

No. 1, per reel of 2000 ft. \$4.50 net.

No. 2, per reel of 2000 ft. \$4.75 net.

Pliers for cutting wire, 50 cents extra.

No. 1 for cases under 300 or 400 pounds, and

No. 2 for all heavier cases.

Buffalo Specialty Mfg. Co.

Sole Manufacturers,

Buffalo N. Y. U. S. A.

BINCHAM PATENT VISE JAW CAP

Will Fit any Kind of Vise.

For protecting finished work. Will hold finished rods of any shape without injury.

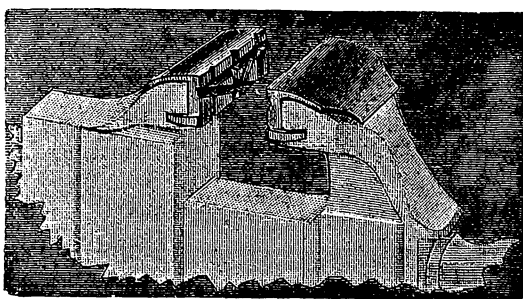
3 1/2 inch, per pair, 40 cents.

4 1/2 " " 50 "

5 1/2 " " 60 "

PRENTISS VISE CO.

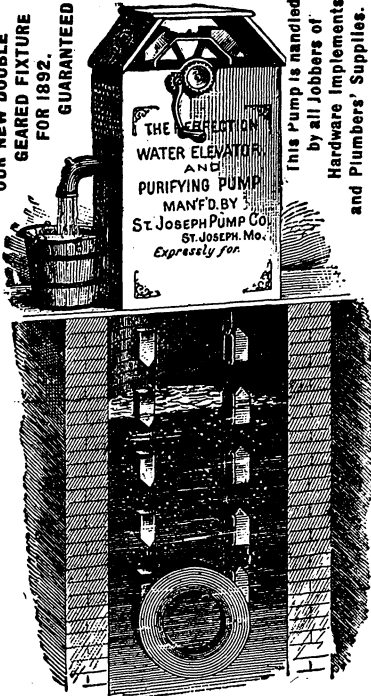
44 Barclay St., New York.



THE KOCH PAT.
SHIFTABLE REVERSIBLE
FOR SHELVING STORES, LIBRARIES, CUPBOARDS & C.
BRACKETS
MANUFACTURED BY
KOCH A. B. CO.
518 MAIN ST. PEORIA, ILL.

EBHARTWELL MFR. OF
AXEADZF PICK
SLEDGE
HATCHET
HAMMER
FOR EXPORT
AND HOME
15 YEARS
EXPERIENCE
USE
SEND FOR PRICES
OHIO
\$170
GALV

OUR NEW DOUBLE
GEARED FIXTURE
FOR 1892.
GUARANTEED



This Pump is handled
by all Jobbers of
Hardware Implements
and Plumbers' Supplies.

IF
YOU
SELL
ONE OF
OUR PUMPS
TO A CUSTOMER
IT WILL PROVE
A WEDGE FOR IN-
CREASED SALES IN
OTHER LINES - - -

ST. JOSEPH PUMP CO.,
ST. JOSEPH, MO., U. S. A.
E. A. KING, Sec'y and Gen'l Manager.



"RELIABLE"
Steel Measuring Tapes.

Entirely new. Handle or crank when closed is perfectly flush with leather case. Opens by pressing button on opposite side and folds out double, giving increased leverage. Best and most convenient steel tape on the market. Fully guaranteed. Will send samples on approval. We carry a complete stock of our goods at our New York Office, 20 Murray St.

LUFKIN RULE CO., Saginaw, Mich.



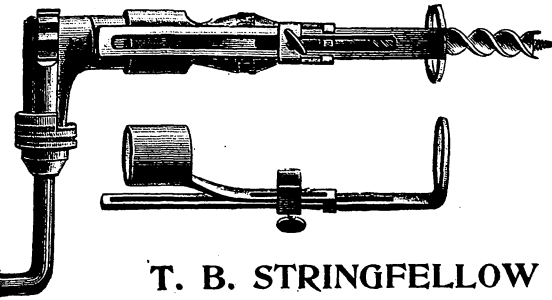
**Wonder Somebody Didn't
THINK OF IT BEFORE!**

The Perfection Barrel Swing.

A simple device, readily attached to any Pantry, Cupboard, Broad Shelf or under the counter in a Grocery or Hardware Store, for swinging a barrel to get at the contents easily. Price, \$1. All Hardware dealers will supply them.

MANUFACTURED BY
THE LEAVITT MACHINE CO
ORANGE, MASS.

BIT GAUGE



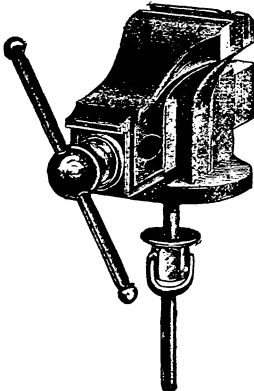
A Perfect and Complete Gauge. Fits all Braces, can be worn on Brace all the time and strengthens Bit. Gauges depth of hole, and cleans out shavings. Simple and Durable and should be owned by every man who uses a Brace. Patented and manufactured by

T. B. STRINGFELLOW & CO., PAWTUCKET, R. I.
FOR SALE BY ALL HARDWARE DEALERS.

**THE
UNIVERSAL SAD IRON CO.**
MILWAUKEE, WIS.,



Manufacturers of the Best Charcoal "Sad Iron" in the world for Families, Dress and Cloak Makers and Tailors. Send for Circulars and Sample Irons. Agents wanted everywhere



HOLLANDS' OFFSET JAW VISE.

Specially adapted for drill press work where chucks cannot be used and equally good for special or regular bench work.

Hollands Mfg. Co.,
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Manufacturers all styles VISES.

CARPENTERS' & MACHINISTS'
IRON BENCH LEVEL
WITH DOUBLE PLUMB.
No. 5. 6 in.



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C. F. RICHARDSON & SON,
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COLUMBIA STEELWIND MILL



New in Principle. Beautiful in Appearance. Powerful in Operation. Contains covered Internal Gear. Unequaled in the line of Pumping Wind Mills. We solicit the closest investigation. Also Columbia Steel Derivatives, Iron Turbine Wind Engines, Buckeye Force & Lift Pumps, Tank and Spray Pumps, Buckeye and Globe Lawn Mowers, Iron Fencing, Cresting, Etc. Write for circulars.

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P. J. Conroy & Co.,
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"CONROY" Refrigerator Door Fasteners



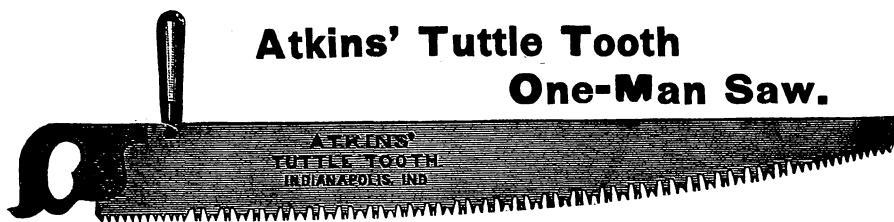
Have rapidly supplanted all others. Refrigerator Triumfings.

Pat. Dec. 15, '85.

Tips to Inventors. By ROBERT GRIMSHAW, Ph.D., M.E. Telling what inventions are needed and how to perfect and develop new ideas in any lines. Cloth.....\$1.00
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We make a Specialty of Fine High-Grade Saws.



Atkins' Tuttle Tooth One-Man Saw.

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ATKINS' TUTTLE TOOTH.

The Original Tuttle Tooth—the Best Saw in the World for the Money.

GEO. N. CLEMSON, Pres.

LOUIS DUHME, Vice-Pres.

ROBERT J. JOHNSON, Treas.

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OPERATING

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SAWS

Three Essentials

IN THE MODERN CROSS-CUT SAW.

- 1.—Teeth of uniform thickness.
- 2.—Five Gauges taper in middle of blade.
- 3.—Three Gauges heavier on ends than in center of back.

For 10 YEARS the Simonds Crescent-ground Cross-cut Saw (the only Saw on the market possessing these **ESSENTIALS**) has stood out prominently in contrast with all other makes of cross-cut saws. It has been the **CRESCENT-GROUND** against the **FIELD--MODERN IDEAS** against **ANCIENT METHODS**.

TO-DAY the Crescent-ground Saw is in use in every important lumber camp in the United States. Manufacturers have endeavored to imitate it, but the Machinery producing the Saw, the Process by which it is produced, and **THE SAW**, are patented. All imitations are but involuntary acknowledgments of the **SUPERIORITY** of

THE CRESCENT-GROUND CROSS-CUT SAW.

(PATENTED DEC. 26, 1882.)

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CHICAGO, ILL.

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CIRCULAR,
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BAND,
BUCK

SAWS

MANUFACTURED BY

C. A. HILES & CO.,

336-338 Carroll Ave., CHICAGO.

Electric Toy Making, Dynamo Building and Electric-Motor Construction. By T. O'CONOR SLOANE, A.M., E.M., Ph.D. This work treats of the making at home of electrical toys, electrical apparatus, motors, dynamos, and instruments in general and is designed to bring within the reach of young and old the manufacture of genuine and useful electrical appliances. The work is specially designed for amateurs and young folks. Very fully illustrated.....\$1.00

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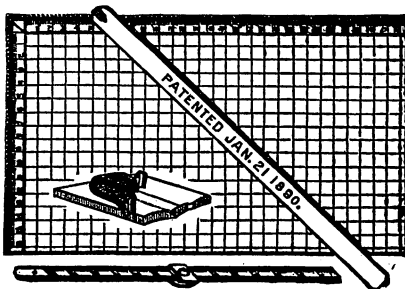
Manufacturer of the

HENRY'S PATENT COMBINATION
HAFT,



AND OTHER TOOL SPECIALTIES.
The Combination Haft contains six Brad-Awls, one Chisel, Screw Driver, Diamond Point Awl, Marking Awl, Tack Puller and Reamer. Send for Circular and Prices.

Full Set Sent Post-paid on receipt of \$1.00. (No stamps.)



The Canton Glass Board.

Cuts any Fraction of an inch by Eighths.

Unequaled for accuracy and quick work in cutting square or at any angle. Saves breakages, &c.

—ALSO—
IMPROVED TRAMMEL RULE for Cutting Circles
From 3 inches up to 48 inches, Segments, Gothic Shapes, &c.

Send for Circular.

The Canton Saw Co., Canton, Ohio.

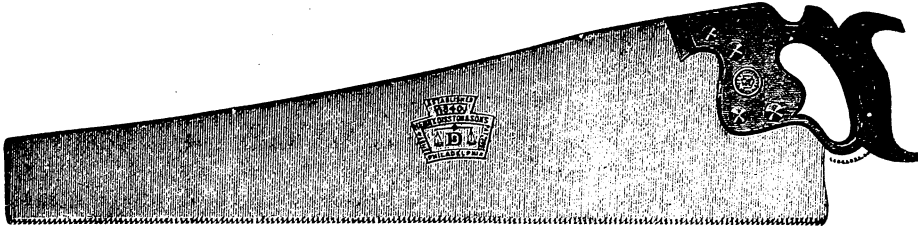
"If you want a Saw It is best to get one with a name on It which has a reputation.
A man who has made a reputation for his goods knows its value as well as its cost and will maintain it."—HENRY DISSTON.

THE SAWS THAT LEAD THEM ALL

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SAW,"
HOW
TO
CHOOSE
IT,
AND
HOW
TO
KEEP
IN
ORDER,
Sent
Free
on
Receipt
of
Name
and
Post Office
Address.

" POCKET
EDITION
OF
THE
SAWYER "
and
" LUMBER-
MAN'S
HAND
BOOK,"
Sent
Free
on
Receipt
of
Name
and
Post Office
Address.

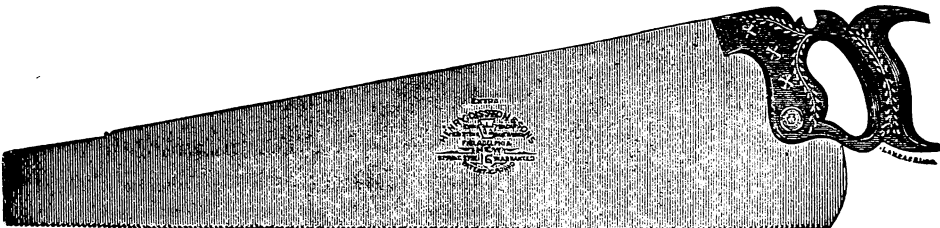
DISSTON & SONS' PATENT D-8 HAND SAW.



This Saw combines all the valuable improvements in Hand Saws that have been made by us of late. The first and most important is the hollow or skew back, the success of which can best be attested by the number sold. The peculiar shape of the butt or heel, coupled with the new method of fastening to the handle, give a full stroke of the blade without fear of catching or hooking in the work ; and as the handle is put further on the blade you have a full stop on the proper point and a greater command over your Saw, by reason of being two inches nearer the point, which must give more power.

The Saw being let into the handle on a circle, has a perfect bearing, which, with the new screws, makes it stronger and almost impossible to work loose, and avoids the unsightly gap that is seen on the back of the old style handle. All the above features are patented.

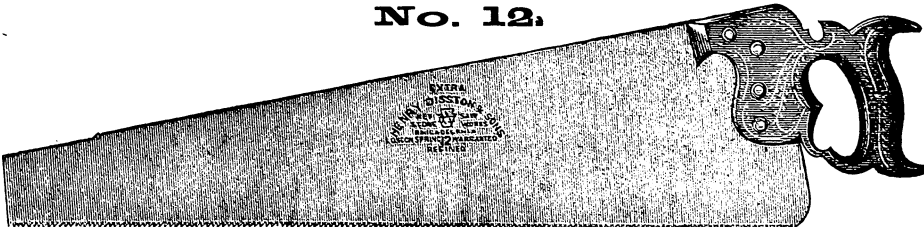
Our New No. 16 Premium Saw.



AN EXTRA FINE SAW IN EVERY RESPECT.

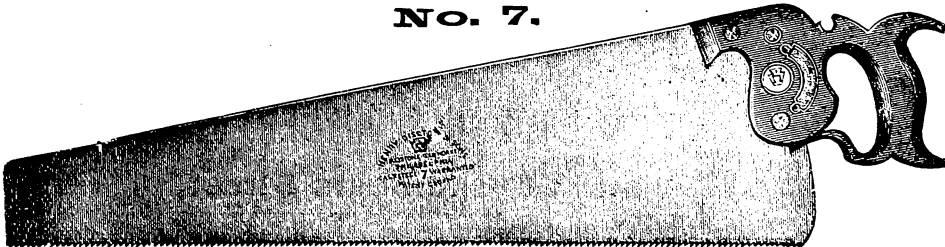
Having the Latest Close up Handle, Spring Steel Blade, Extra Thin Back, Finely Grained, with an Apple Handle and Four Brass Centennial Screws.

No. 12.



DISSTON & SONS' Extra Refined London Spring Steel, Selected and highly Polished Blade, Handle Carved and Polished, 4 Improved Brass Screws, the finest Hand Saw manufactured.

No. 7.



DISSTON & SONS' Cast-Steel, Warranted, Beech Handle, Polished Edge, 4 Improved Screws, Grained Blade.

ASK YOUR DEALER TO ORDER THEM FOR YOU.

HENRY DISSTON & SONS

(INCORPORATED),

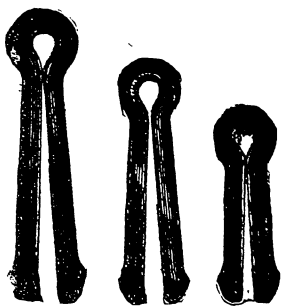
Keystone Saw. Tool, Steel and File Works, Philadelphia, Pa.

FACTORIES AT
AKRON, - OHIO.
CANTON, - OHIO.

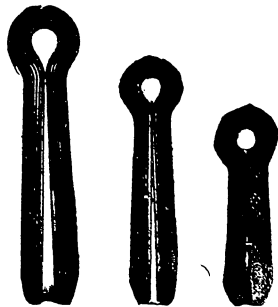
The Whitman & Barnes Mfg. Co.

FACTORIES AT
SYRACUSE, - N. Y.
ST. CATHARINES, ONT.

—MANUFACTURERS OF—



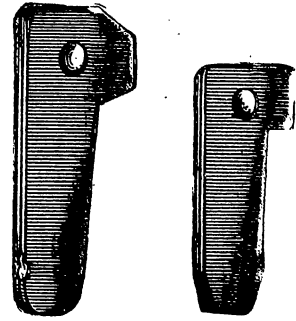
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Spring Cotters.



Flat Spring Keys.



Flat Riveted Keys.

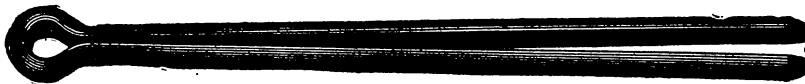
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CHICAGO ILL.
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Cellar Box Cotters.

BRANCHES AT

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BOSTON, MASS
1917 Market Street,
PHILADELPHIA, PA
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NEW YORK OFFICE, 102 CHAMBERS ST.

NICHOLSON FILE CO.
PROVIDENCE, R. I.

VARIETIES FILES
[X.F.] AND INCREMENT CUT FILES

THE LARGEST AND MOST COMPLETE FILE WORKS IN THE WORLD.

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For Superiority



Manufacture and keep in stock a full line of FILES and RASPS only, for which we claim special advantages over the ordinary goods, and ask domestic and foreign buyers to allow us to compete for their trade.
Superiority acknowledged wherever used, sold or exhibited.

BEST

CRUCIBLE
STEEL.

"TROJAN" HORSE RASPS.

LOWEST

IN
PRICE.



STRONGEST
TOOTH.

BANKER & WHITE,

(Troy File Works.)

TROY, N. Y.

LET
US
QUOTE.

The Taintor Positive Saw Set

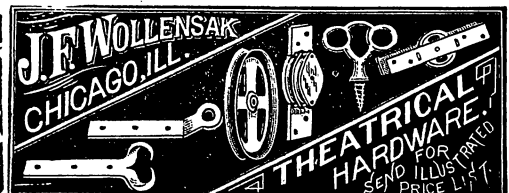
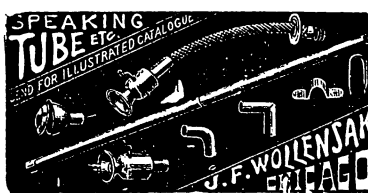
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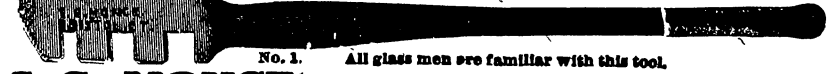


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Engraver and Die Sinker.
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Manufacturer of
STEEL STAMPS
For Every Purpose.
Steel Letters & Figures.
Burning Brands, Stencils
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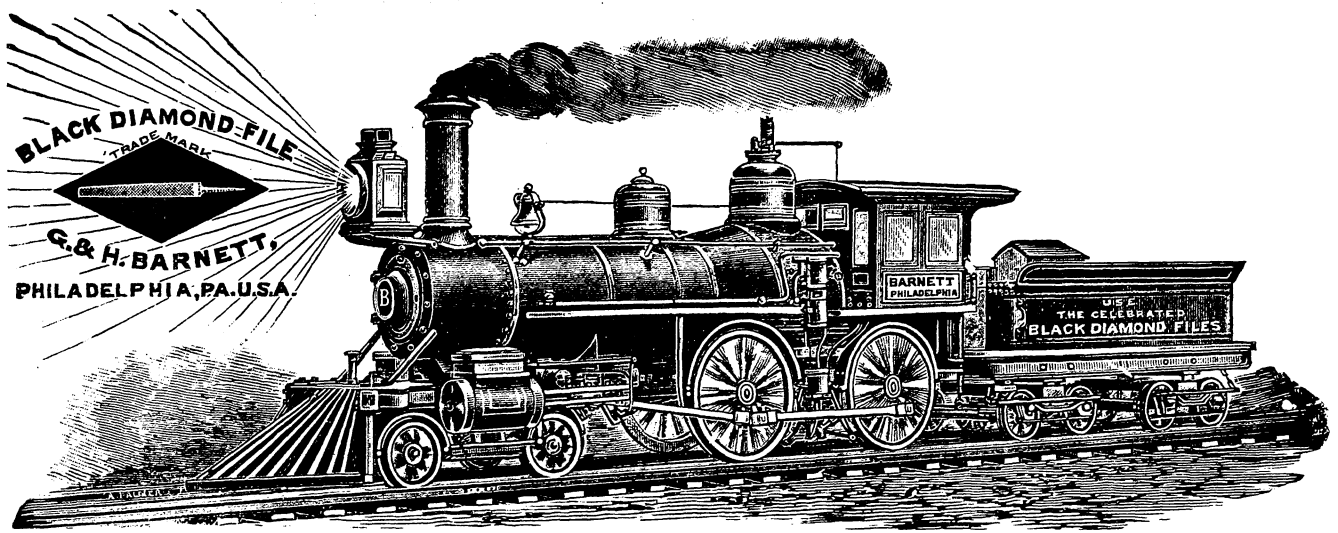
MONCE'S Novelty Glass Cutters are the standard. No. 17 just out. Send for Illustrations and Price. We also make the Compartment Font Interchangeable Lock Stencils that are having such run.



No. 1.
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All glass men are familiar with this tool.

BRISTOL, CONN.



J. M. KING & CO.,
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Manufacturers of
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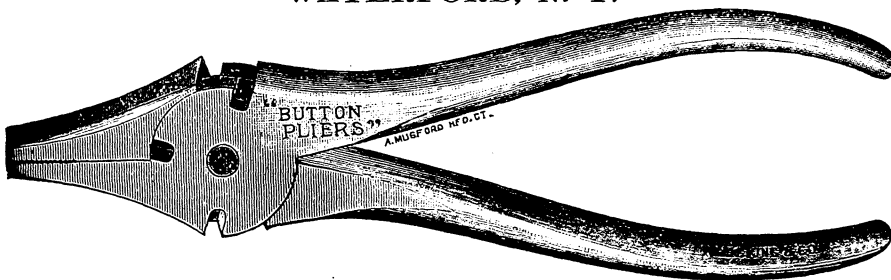
**Pat. Wire Cutter
AND PLIER COMBINED.**

Specially Adapted for Use on Wire Fence.

Also Manufacturers of BLACKSMITHS' and
MACHINISTS' STOCKS and DIES, PLUG and
TAPER TAPS, HAND, NUT and SCREW
TAPS, PIPE TAPS and REAMERS.

Price-List on Application.

Established by DANIEL B. KING, 1829.



THE H M MYERS COMPANY
ONE SOLID STEEL SHOVELS

THE
BLADE

*Are made from
this one solid
piece of steel.*



AND
STRAPS

*A Perfect
Plain Back Tool
With thick Centre.*

WITHOUT WELD OR RIVET

CAREFULLY TEMPERED

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SICKELS, SWEET & LYON,

Wholesale Hardware.

Office, 35 Barclay St. Warehouse, 40 Park Place, New York.

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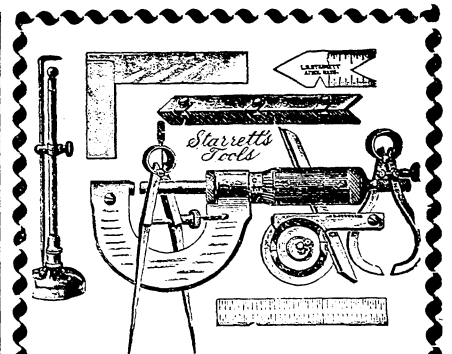
"Perfection" and "New Easy" Lawn Mowers,
Cortland Door and Window Screens,
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Union Steel Screws.
Full line Steel and Wood Farming Tools. Shipments from Factories or Store.
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**Skilled
Mechanics**

want tools that are warranted
accurate, best in workmanship,
latest in design, finest in finish.

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want tools they can swear by,
not at. That can be relied upon
to satisfy intelligent customers.
That come nicely put up. That
pay a good profit.

**Starrett's
Tools**

meet the requirements of both.
SEND FOR CATALOGUE.

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Athol, Mass., U. S. A.

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John Wilson's Butchers' Knives and Steels, Skinning, Sticking, Farriers' & Shoe Knives,

Have established and maintained their reputation, for superiority,
against all Competitors, from

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and are still in increasing demand. As in the past, it is the unalterable
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—MANUFACTURERS OF—

Pocket and Table Cutlery, Scissors, Razors, Erasers, &c., &c.

These goods have fully maintained their reputation as the best cutlery in the world for over

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We manufacture all kinds of

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of highest grade and sell at proper prices

Send for Illustrated Price-List.

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LAWN SWINGS,

Window Jacks and Swing Scaffolds. Trade dis-
count 20 and 5% list. We pay the freight.
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329 to 335 West 3d St.,

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The New York Safety Dumb Waiter,

"The Manhattan Dumb Waiter,"

"The Improved Humphrey Hand Elevator,"

Made specially to be sold by Hardware Stores. Thousands
in use. Catalogues on application.

THE STORM MANUFACTURING CO.

NEWARK, NEW JERSEY.

Formerly of Poughkeepsie, New York.

THE FOX SAFETY RAZOR.

(U. S. Patent 484,116, October 11th, 1892.)

Is the finest and most practical in the world.

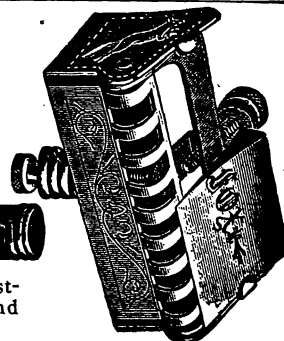
EVERY MAN HIS OWN BARBER.



Makes shaving a luxury; no danger of cutting. Adjust-
able blade. Silver plated frames. Sole manufacturer and
patentee,

E. LOTHAR SCHMITZ, 92 Reade St., New York.

Sold by all the Leading Hardware and Outlery Houses.



Underhill, Clinch & Co.,

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English Riveted Scythes and Grass Hooks.

Malleable Iron Rakes,

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Scythe Snaths, Scythe Stones,

Poultry Netting, Green Wire Cloth,

&c., &c., &c.

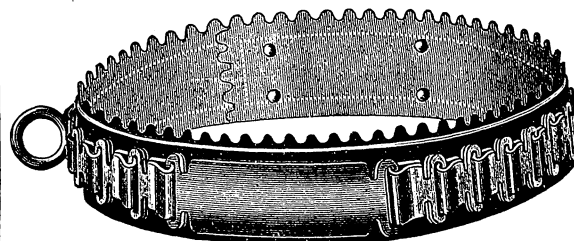
KELLEY'S PATENT DOG COLLARS,

HALTER
CHAINS,

Dog Leads

AND

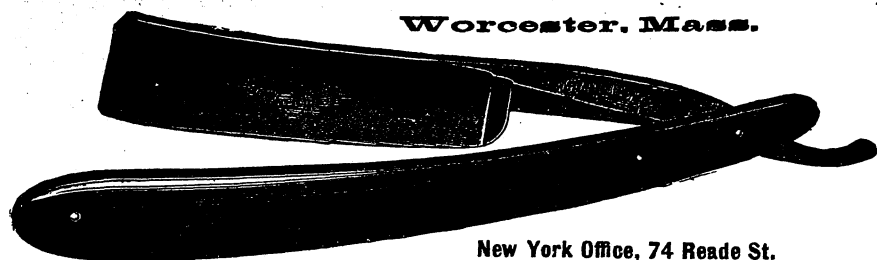
Key Chains.



KELLEY & WOOLWORTH, Niagara Falls, N. Y.

J. R. TORREY RAZOR CO.,

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New York Office, 74 Reade St.

Our Razors have become the standard for excellence and are no higher in price than the foreign. We manufacture and carry in stock more than 200 styles. Send for illustrated catalogue.

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BUCK BROTHERS,

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The Most Complete Assortment in the U. S. of

Shank, Socket Firmer and Socket Framing Chisels.



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PLANE IRONS.

CAUTION.—Buyers should be on their guard and not have inferior goods palmed on them by unprincipled persons who represent them as our make. Our tools are stamped "BUCK BROTHERS," and our labels have on our trade-mark also, "Riverlin Works."

Established 1825.

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R. HEINISCH'S SONS CO.,

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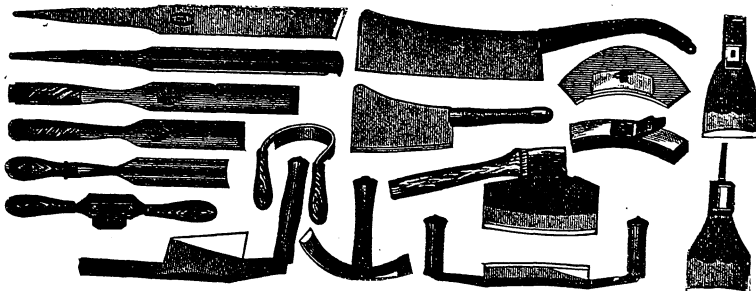
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Tailors' Shears, Trimmers, Scissors, Tinnern's Snips, etc.

CATALOGUES AND PRICES ON APPLICATION.

WE HAVE NO CONTRACT WITH MESSRS. HERMANN BOKER & CO. AS AGENTS FOR THE SALE OF OUR GOODS.

HIGHEST AWARD PARIS EXPOSITION, 1889.



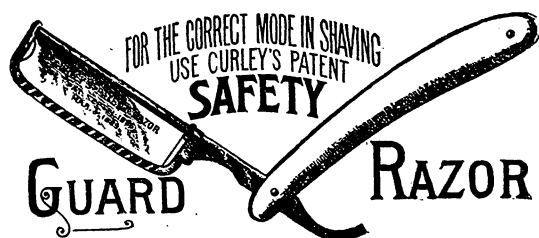
THE L. & I. J. WHITE CO.

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MANUFACTURERS OF

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Coopers', Carpenters' and Ship Tools, Plane Irons, Cleavers, &c. Full Line Chisels.



FOR THE CORRECT MODE IN SHAVING
USE CURLEY'S PATENT
SAFETY

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RAZOR

We also carry the largest line in the United States of CUTLERY of every description.

J. CURLEY & BROTHER,

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Commission Hardware.

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Agent—G. W. Bradley's Edge Tools, Axes, Coopers' Tools, Cleavers, Bush Hooks, Draw Knives, Ship-Carpenters' Tools, &c. Also a full stock of Planes, Brooks' Bright Wire Goods, Washita Stone and Taunton Tack Co.'s Rivets, &c.

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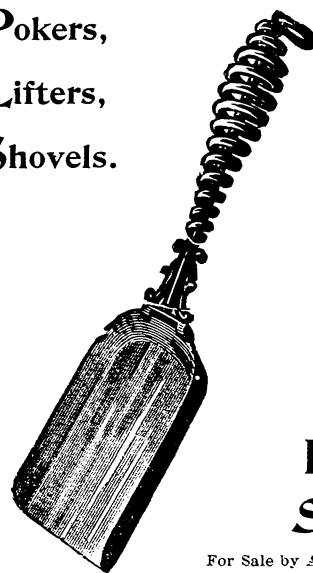
ALWAYS COLD.

Stove Trimmings.

Pokers,

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First-class Jobbers in Hardware.

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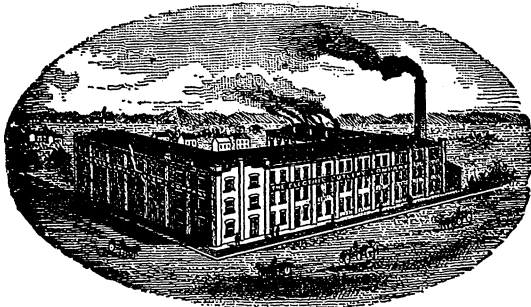
Knives or Razors,

SEND TO

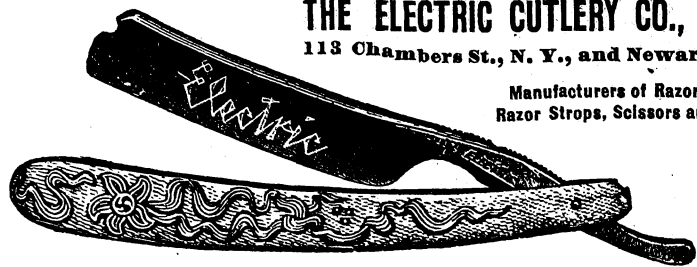
FRED. B. GURNEY.

116 Chambers St., N. Y.

The Best Equipped Cutlery Works in the World.



FACTORY: FOURTH & DICKERSON STS. NEWARK, N. J.



THE ELECTRIC CUTLERY CO.,

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Manufacturers of Razors, Knives,
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— OUR CLAIMS ARE: —

EXTRA QUALITY OF STEEL IN BLADES.

SUPERIORITY IN GRINDING AND FINISH.

STRENGTH AND DURABILITY.

Made in Plain Steel or Heavily Plated Blades, Hand Burnished.



W. & S. BUTCHER, Sheffield, England, and 135 Duane St., New York
Makers for over *One Hundred Years* of the celebrated "*W. Butcher*" Files and
Edge Tools and "*Wade & Butcher*" Razors, and the Original Manufacturers of Hollow
Ground Razors, can with confidence highly recommend their goods and particularly their

Ⓢ **SPECIAL** Ⓢ

Brand as being the most perfect *Extra Hollow Ground*
Razors ever manufactured and especially suited for the use of
Barbers and for private use. Genuine Razors are marked with
one of the following Corporate Trade-Marks:

**WADE & BUTCHER
SHEFFIELD, ENGLAND**



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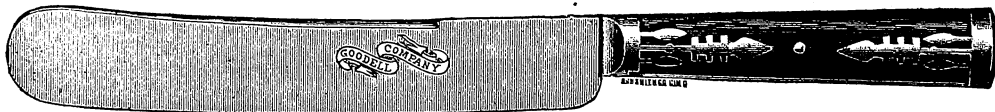
Ⓢ **SPECIAL** Ⓢ

FOR SALE BY ALL DEALERS IN HARDWARE, CUTLERY AND FANCY GOODS.

GRANITE STATE CUTLERY WORKS.

WE CLAIM

MANY POINTS OF SUPERIORITY OVER ANY OTHER
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Knives and Forks, Carvers, Butcher Knives, Butcher Steels, Skinning,
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A LARGE VARIETY.

Our New Catalogue Free to any Dealer.

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ALFORD & BERKELE CO., Agents, P. O. Box 2002. No. 77 Chambers Street, New York, N. Y.

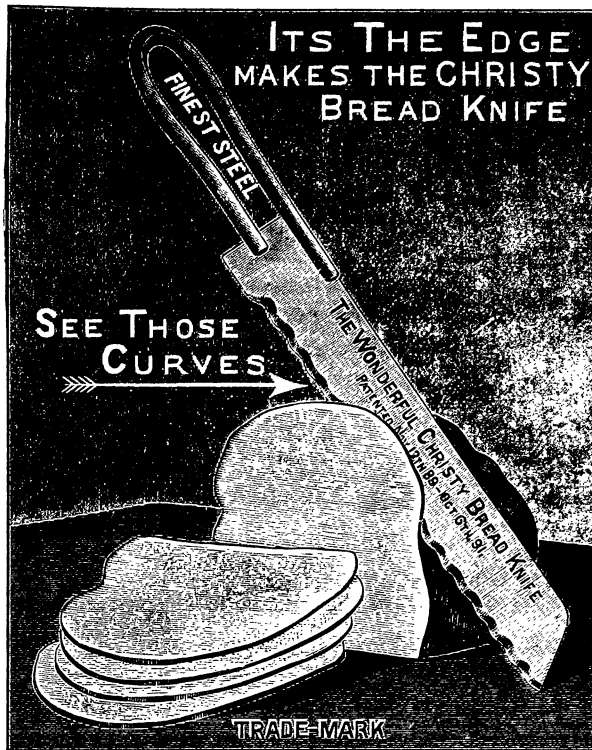
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A practical means of rapidly reaching absolutely accurate results without the mental wear of computing.

It gives at a glance the net of any sum at a great range of discounts, simple and complex, and it is accurate, rapid and practical.
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DEALERS BUY THE

Christy Knife

Because it's the only one that **will cut** bread, cake, meats, etc., without crumbling; besides, it is made of superior material, consequently holds its **edge** longer than any other.

Get on to those Curves!

They're what make it a successful knife.

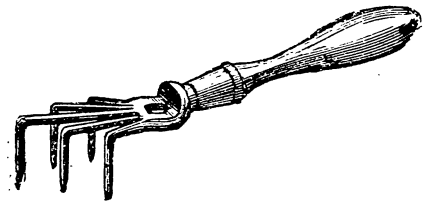
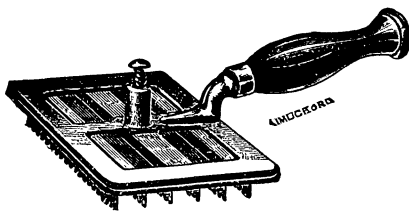
The Christy Knife Co., **FREMONT, OHIO.**

A full line of Boys' Garden Sets, Floral Sets
Kitchen Hardware and Hardware for Children's
Carriages.

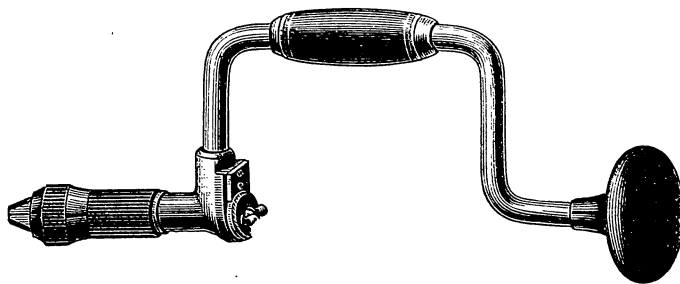
Sole makers of the celebrated "Maud S."
Self-Cleaning Curry Comb.

B. B. NOYES & CO.,
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Send for full Catalogue and Prices.

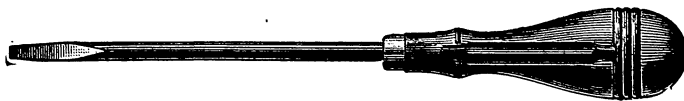


Standard Bit Brace Ratchet.



Patented.

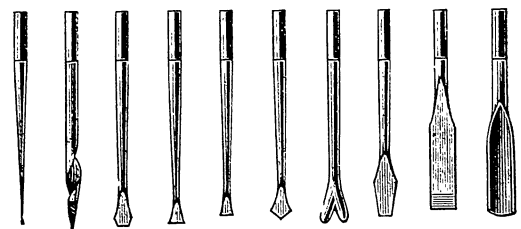
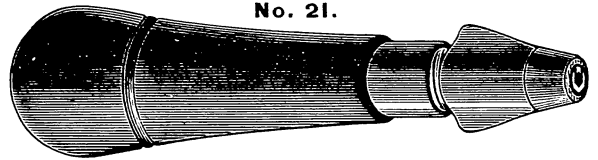
Standard Screw Driver.



Patented March 25th, 1890.

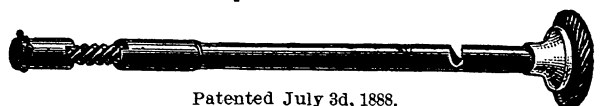
Standard Tool Handle.

No. 21.



Patent Applied for.

Standard Spiral Screw Driver.



Patented July 3d, 1888.

CHANTRELL TOOL CO., Manufacturers,

READING PA.

WARREN AXE AND TOOL WORKS, WARREN, PA., U. S. A.,

Manufacturers of a Superior Quality of

AXES AND TOOLS,

Including Double and Single Bit Axes, Broad Axes, Hand Axes, Planing Mill Knives,
Moulding Knives, Machine Knives of all kinds, Carpenter Adze,
Mining Picks and Bark Spuds.

We make **THE SAGER SPECIAL CHEMICAL PROCESS AXE**, only
known by us, while others are imitating this axe. None genuine without our label:
"**SAGER'S SPECIAL CHEMICAL PROCESS AXE.**" Write for Prices.

JOHN LOYD,



**Machine Knives, Shear Blades,
Presses and Dies.**

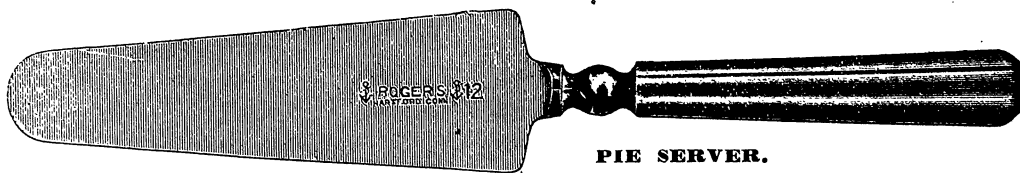
Nos. 558 to 562 Water Street, New York.

—NONE BETTER—

THAN THE



SILVER PLATED WARE.



PIE SERVER.

MANUFACTURED BY

THE W. M. ROGERS MFG. CO.,

Office and Factory, HARTFORD, CONN. P. O. Drawer 30.

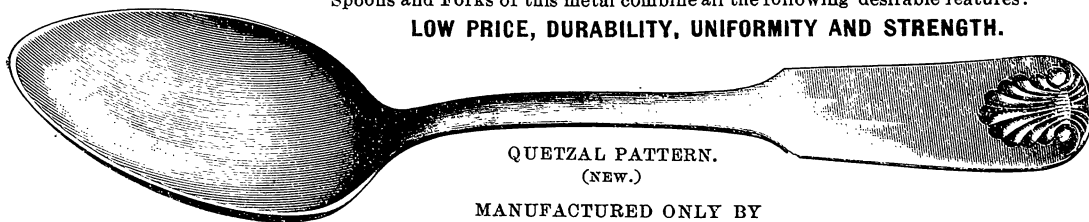
NEW CATALOGUE FOR THE ASKING.

AZTEC COIN METAL

MADE INTO SPOONS AND FORKS.

Spoons and Forks of this metal combine all the following desirable features:

LOW PRICE, DURABILITY, UNIFORMITY AND STRENGTH.

QUETZAL PATTERN.
(NEW.)

MANUFACTURED ONLY BY

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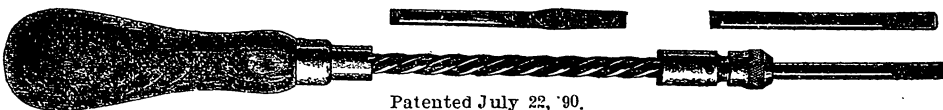
Bridgeport, Conn.

AZTEC COIN METAL
has no plating to
wear off. Made
of solid metal.
Easily kept clean.

NOW IS THE TIME to replenish your stock of GOODELL'S AUTOMATIC
SCREW DRIVERS.

Watch this space next month.

An Automatic,
Ratchet
and Plain
Screw Driver
all in one.



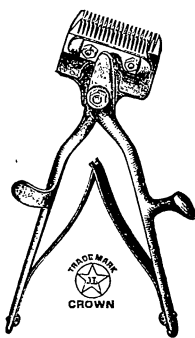
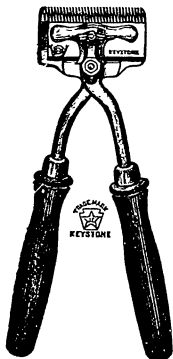
Patented July 22, '90.

The
acknowledged
STANDARD.

All live jobbers carry them. **Accept no substitute.** Cheap tools are dear at any price. All our goods are made to work well, last long, and reflect credit upon the dealer who sells them and honor upon the whole Hardware fraternity. We have several new specialties shown in our new catalogue. Do you want a copy?

H. H. MAYHEW CO., - - - **Shelburne Falls, Mass., U. S. A.**
Manufacturers of Fine Mechanics' Tools.

IF YOU ARE INTERESTED IN
CLIPPERS



For HORSEMEN OR BARBERS

Send Postal Card for our new Illustrated Catalogue.

JESSE LEE & SON,
37 SO. FOURTH ST., PHILADELPHIA.

THE BUCKEYE MFG. CO.,

UNION CITY,
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The Gem Post Hole-Digger.

This AUGER bores rapidly and is easily operated. It will open wide when dumping the dirt, which may be entirely removed from the hole—whether wet or dry, fine or coarse—by closing the blades.

The GEM is the only post hole auger having blades so shaped as to allow them to close in a perfect manner at points, and sufficiently to retain the dryest and even the finest dirt or sand. This great improvement and point of superiority over any and all other augers is the result of blades of a shape, which shape is

superior.

post hole

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patented.

The

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The

Boss 2-speed Boring

Machine.

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same effort required in

and one-half inch in any

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have a speed two and

times faster. Two augers

kept in the machine, to

point it down ward by

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frame inverting and

it.

The

Lightning Drain Cleaner.

The Drain Cleaner is a hand

machine used as a shovel. The

dirt pan is made of No. 18 Steel

3 inches deep and 12 inches

long, with vertical end in rear.

It has a decided advantage

over other machines

in ripping water and

dirt. It is also used

for letting down til-

ing in ditches, which

is very convenient and

saves extra labor of stand-

ing and working in mud-

dy ditches. The iron ad-

justing rod can be used

with great rapidity and

ease and can be adjusted

to pull or push with as

quick a motion as may be

desired. To use it

in any particular

shape tighten the

set screw.

Send

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Prices.

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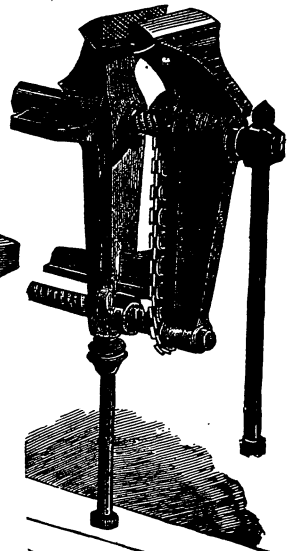
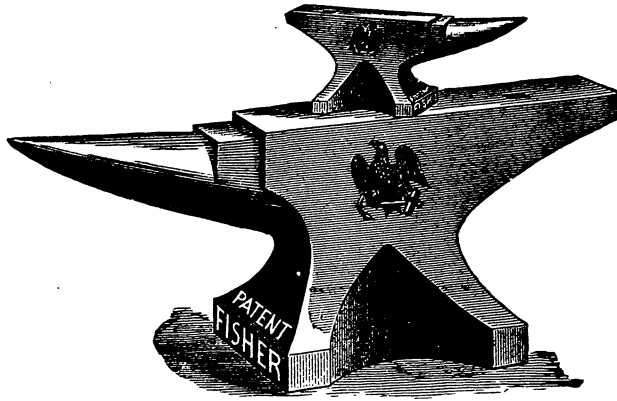
Warranted Better than the Best

ESTABLISHED 1843.
MORE THAN 200 DIFFERENT PATTERNS.**ENGLISH ANVIL**

Face in one piece of BEST TOOL CAST STEEL, PERFECTLY WELDED, perfectly true, of hardest temper, and never to come off or "settle." Horn of tough *untempered* steel, never to break or bend. *Only Anvil made in United States fully warranted as above.*

FISHER DOUBLE-SCREW VISE

IS FULLY WARRANTED STRONGER THAN ANY OTHER LEG VISE, AND ALWAYS PARALLEL. Is the best Vise for Machine Shops and Blacksmiths, and for all heavy work. ACCURATE AND DURABLE. Send for Circular.

None Genuine without our Trade-Mark,
EAGLE and "FISHER" Stamp.**EAGLE ANVIL WORKS, - Trenton, N. J.**

Sold in New York by our agents, J. C. McCarty & Co., 97 Chambers St., The Russell & Erwin Mfg. Co., 45 Chambers St.

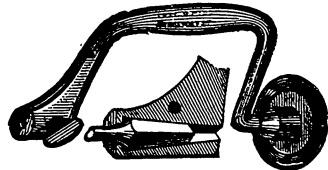
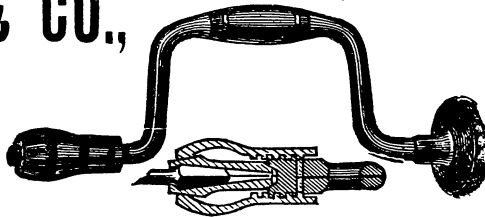
TWIST DRILL BIT FOR WOOD.

—MANUFACTURERS OF—

Adjustable Monkey Wrenches, Parlor Door Hangers, Adjustable Hollow Augers, Standard Clamps, Adjustable Clamps, Twist Drill Bits for Wood, Carpenters' Clamps, Spoke Shaves.

THE CINCINNATI TOOL CO.,**CINCINNATI, OHIO, U. S. A****JOHN S. FRAY & CO.,**

BRIDGEPORT, CONN., U. S. A.

**Spofford Bit Brace.****Spofford Sleeve Brace.**

The Spofford Bit Brace is made under Letters Patent of the U. S. A., granted to N. Spofford, March 23 1880 assigned to John S. Fray & Co.

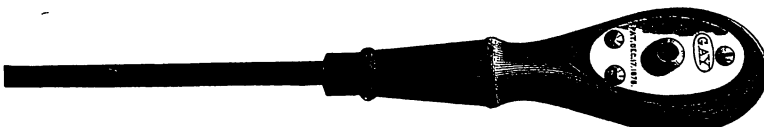
All Iron, Five Sizes. Cocabolo Head and Handle, Nickel Plated.		Sleeve Brace, Nickel Plated.	
No. 7.....	7 inch sweep.	No. 70.....	7 inch sweep.
No. 8.....	"	No. 80.....	"
No. 10.....	"	No. 100.....	"
No. 12.....	"	No. 120.....	"
No. 14.....	"	No. 114.....	"

**HENRY'S
GRAPE SHEARS**

Increased demand and increased facilities for production enable us to make lower prices than ever before. Holds firmly anything it cuts and can be instantly released by the operator. Samples by mail to the trade at wholesale prices and postage.

BEST MATERIAL. WELL MADE. CHEAP.**The J. T. HENRY MFG. CO., Hamden, Conn, U. S. A.****THIS IS THE "OLD RELIABLE" DOUBLE ACTION
RATCHET SCREW DRIVER****One of the Very Best Tools Ever Invented.**

It Combines greater Strength, Convenience and Durability than was ever obtained in a Common Driver

Gives Perfect
Satisfaction.
Sells ReadilyLEADS THEM
ALL

Sold by all First-Class Dealers. Send for Price List.

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ACME CUTTING TOOLS.

Made in all Sizes.

**SOLID STEEL ACME PLIER
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Made with cutters of best steel.

Jaws of Choicest Tool Steel, dovetailed into the head, making it as strong as solid steel.

ACME CUTTING NIPPER.**HIGGANUM HARDWARE CO., HIGGANUM, CONN.**

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Simple and Convenient

Prices on Application.

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of Burlington, Vt.**

MANUFACTURERS OF

Improved Adjustable Window Screens.**THE QUEEN ANNE.** With box panels; the only screen made and finished alike on both sides.**THE EUREKA.** The best cheap extension screen on the market.**SCREEN DOORS.** Finished all ready to hang. Sticks Corners, Improved Frames, &c.

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BEST FOR USE!****Ripley Mfg. Co., Unionville, Conn.**

Porcelain-Lined Lemon Squeezers, Steak Hammers, Boot Jacks. Magnetic Tack Hammers, Naillets, Bung-Starts, Hand Screws, Beacon Hill Pat. Mouse Traps, Sunny-Side 2 lb. Lap Board.

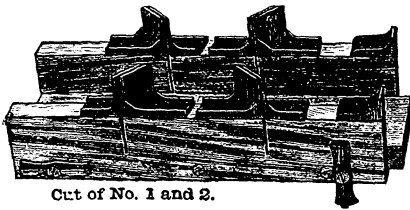
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Buckets always in stock. Any size.



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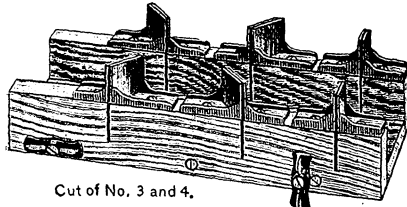
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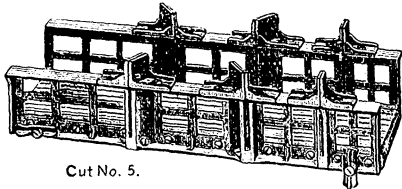
Cut of No. 1 and 2.

Price No. 1, \$12; No. 2, \$18 per dozen.



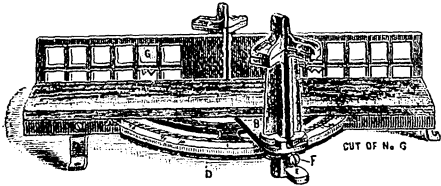
Cut of No. 3 and 4.

Price No. 3, \$15; No. 4, \$21 per dozen.



Cut No. 5.

Price No. 5, \$45 per dozen.



Price No. 6, \$80 per dozen.

Nos. 1, 2, 3 and 4 have hardwood frames and iron saw guides. No. 5 has iron frame and saw guides. No. 6 is a Universal Mitre Box made of iron and steel. For descriptive circular and discounts address

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HAND-AXES, BARK SPUDS.

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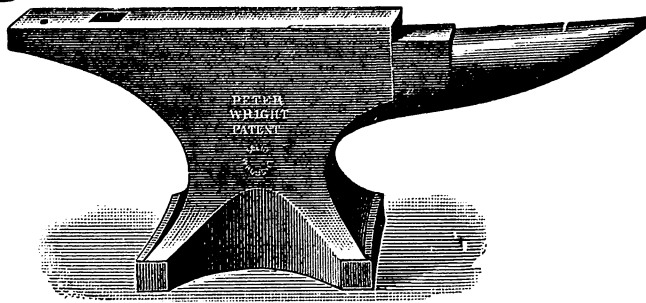
Factory, - - - Fiskdale, Mass.

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WRIGHT
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SOLID WROUGHT
ANVIL
Made of Best Scrap Iron!
THE BICK FACE AND END ALL
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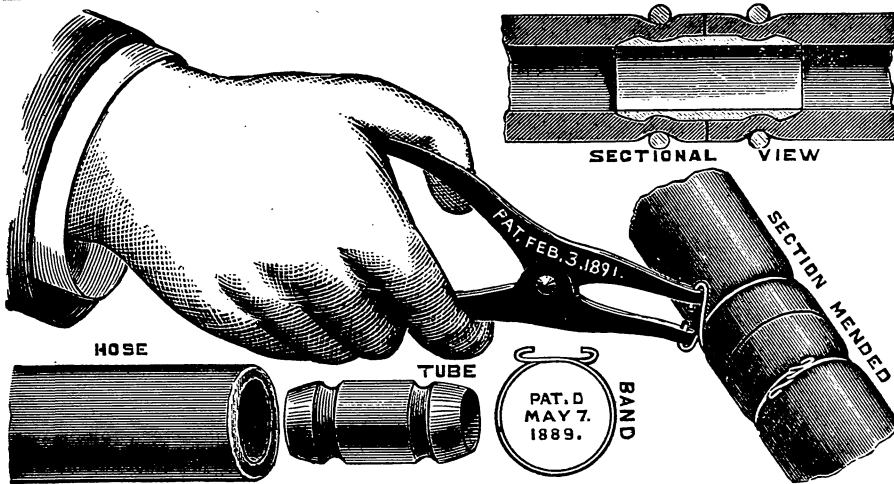
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**CHEAPER,
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Screw menders tear the rubber lining from the hose. OURS will not. If you wish to handle a good thing with a good profit write for circular and prices.

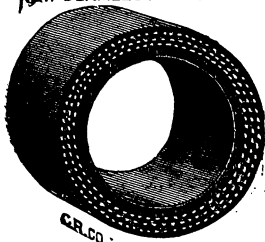
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Thirteen Sizes made, 6/0 being the Largest.

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Who Has Not Had Bad Hose?

Who has not lost time, patience, money, by attempting settlement for such goods?

THE CAUSE in nine cases out of ten is the lapped seam.
THE REMEDY is in buying our

PATENT SEAMLESS-TUBE HOSE,

made by machinery, the tube run like lead pipe, through a die. There is no lapped tube, no seam, no cracks, no defects: water cannot get through, h to rot the duck and cause the hose to burst.

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Order a Sample Bale of our Seamless-Tube Hose—Best in the World, costs no more than ordinary lapped-seam hose. The different colors, Red, White, Black, Green and Yellow, make a fine window or sidewalk attraction.

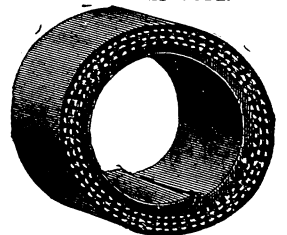
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alone during the past year, distributed throughout the United States, and not a single piece complained of, justifies us in guaranteeing that it will give absolute satisfaction.

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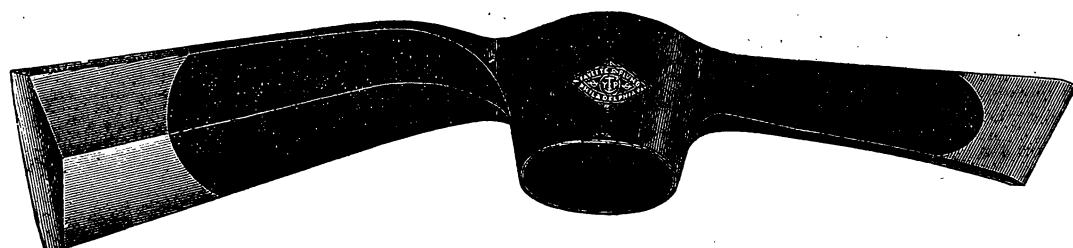
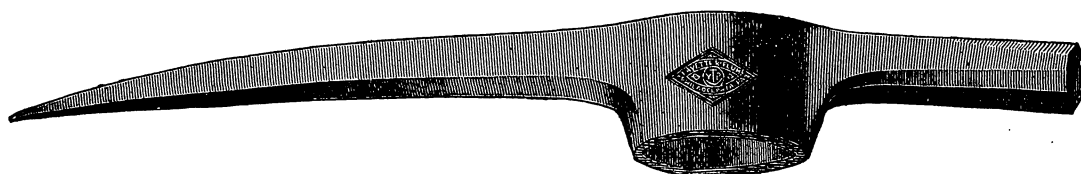
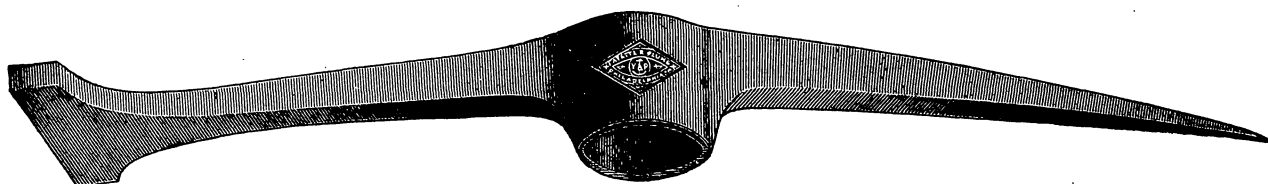
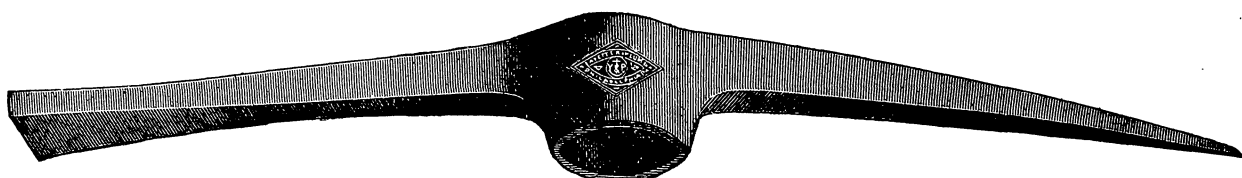
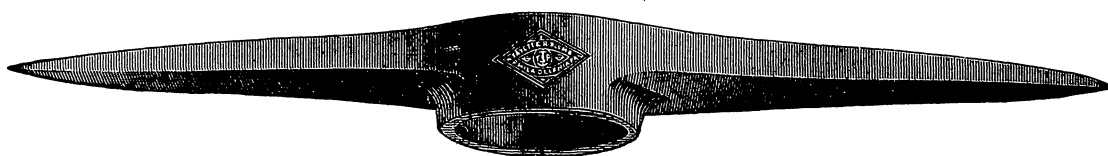
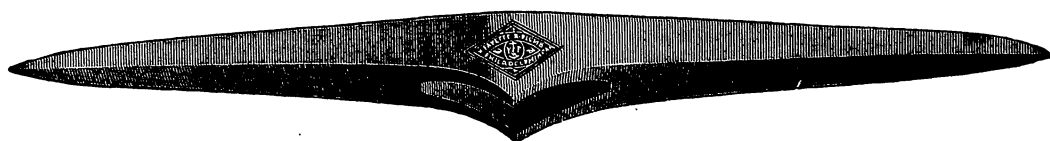
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Edge Tools, Hammers and Sledges,

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THE AMERICAN AXE AND TOOL CO.,

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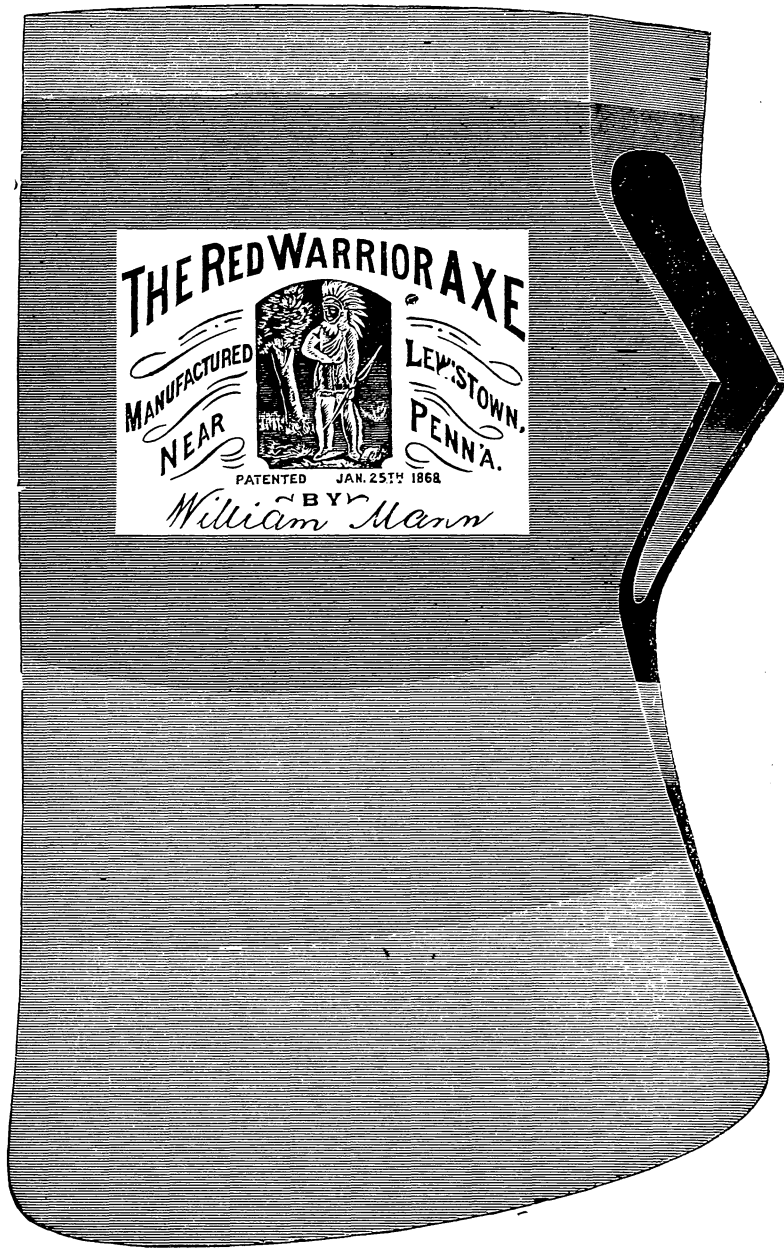
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Grass Hooks, Corn Knives, Bush Hooks, Planters' Eye Hoes, Ice Axes, Ice Hatchets and Firemen's Axes, Wood Chisels, Picks, Mattocks, Brick Hammers, Box Openers, Ice Chisels, Butchers' Handled Axes, Meat Hatchets.

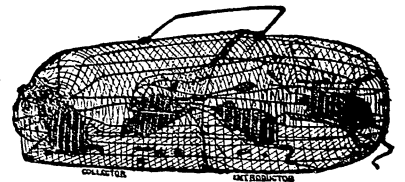
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GENUINE MARTY **RAT AND MOUSE TRAPS**
ALWAYS IN STOCK.



THEY DO THE WORK.
Orders solicited. Prices on application.
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Manufacturers of

Hardware Specialties, Can Openers, Pocket Wrenches, Mining Knives, Clothes Line Pulleys, &c.

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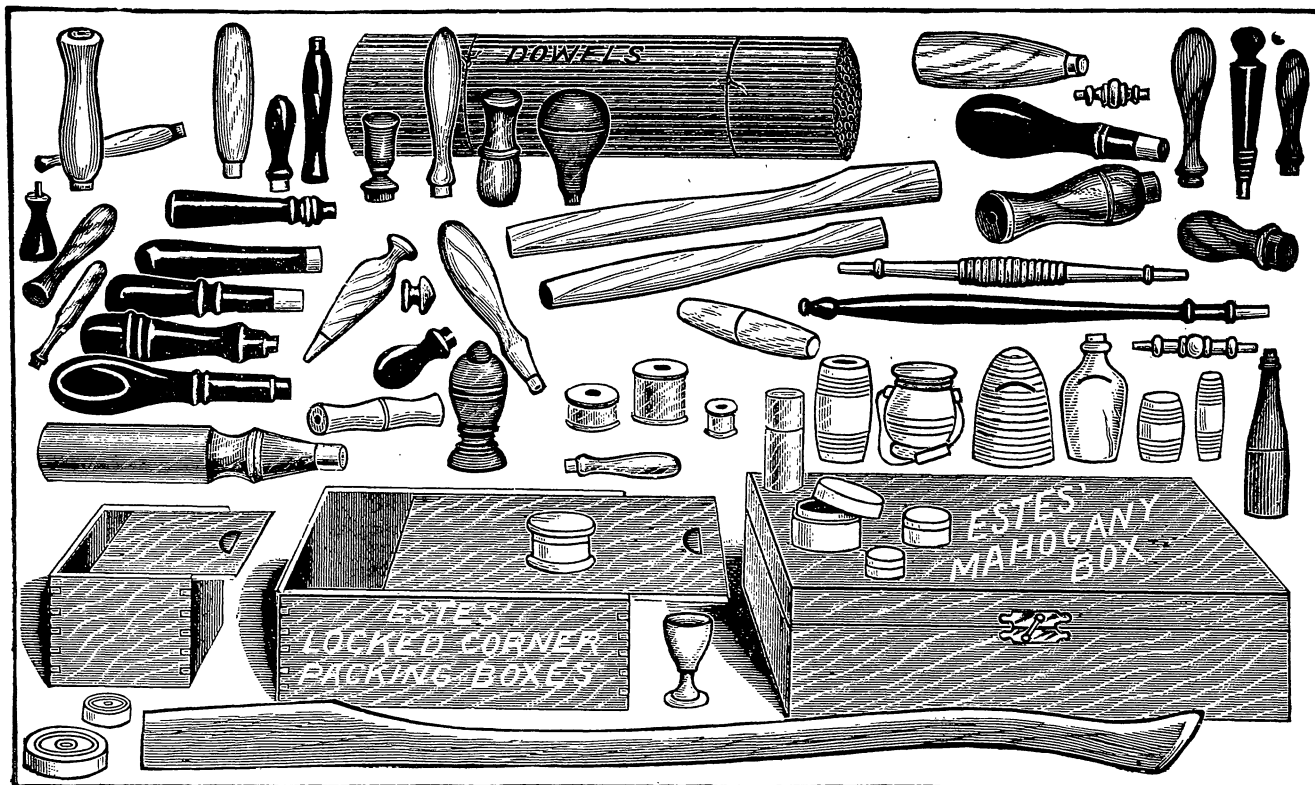


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LOCKED CORNER PACKING BOXES, Turned Wooden Boxes, Fancy Boxes, Dowels, Spindles, Wooden Toys and all kinds of Square and Round Wood Work.



We are the most extensive manufacturers of Handles and Wooden Boxes in this country, and will make you lower prices than you can obtain elsewhere. Send for quotations

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INCORPORATED
1891.

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26 Warren St., New York,

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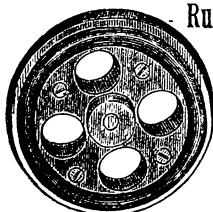
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RAILWAY SPECIALTIES.

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Rubber and Iron Wheels

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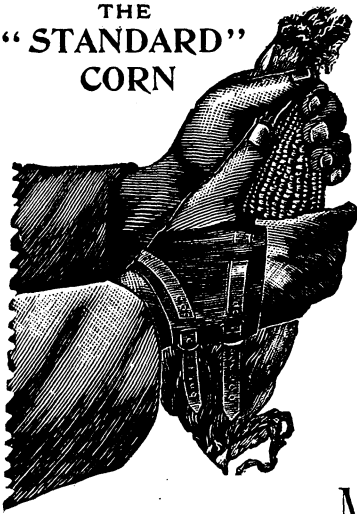
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Mill use.

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THE
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Husker.

A TRIAL WILL CONVINCE

The user that the STANDARD will husk more corn more easily and with greater freedom than any other. It's the only husker that allows of the full use of every joint in the hand and that can be left on the latter while tying fodder.

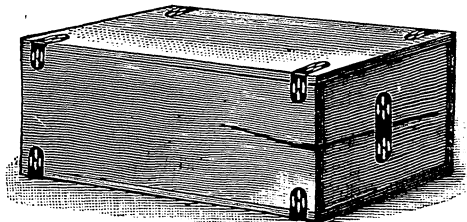
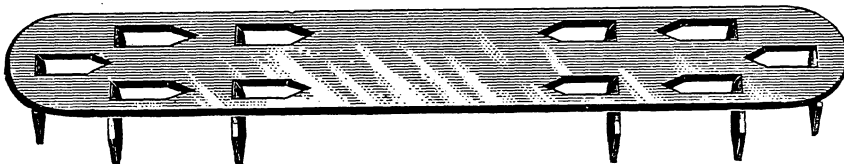
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SIX YEARS

of practical use-warrant these statements, and as a DEALER you are interested in selling only the best goods to your customers; therefore it will pay you to write for our best discounts.

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Require No Nails. Quickly Applied.



Our new line of Box Corners and Fasteners are made in FIVE SIZES for light and very heavy cases.

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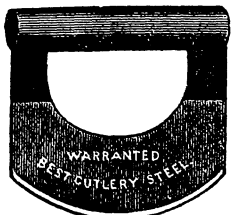
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THE CLARK MFG. CO.,

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**THE GEM
SOLID STEEL MINCER**



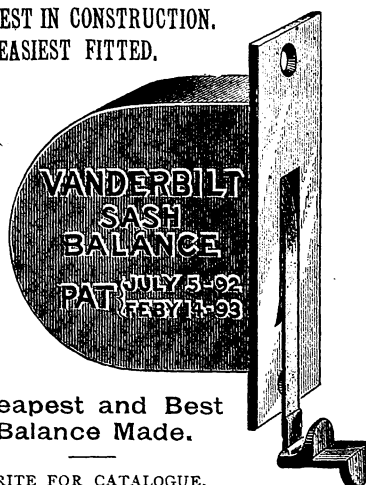
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Handle and Blade Formed in one piece.
Always Clean. Indestructible.
No Rivets to Wear Loose.
No Wooden Handle to Shrink, Swell, Loosen,
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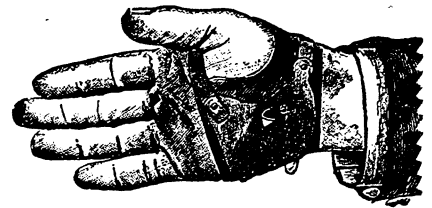
SIMPLEST IN CONSTRUCTION.
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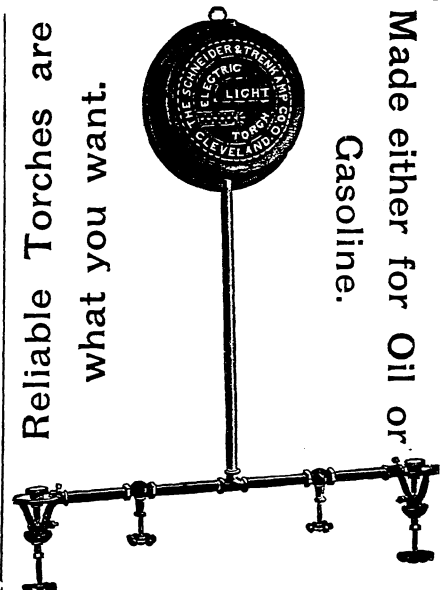
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Balance Made.

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The Vanderbilt Sash Balance Co.,
CANANDAIGUA, N. Y.



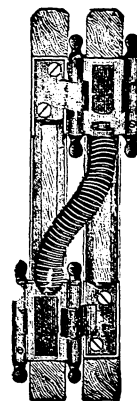
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what you want.



Made either for Oil or
Gasoline.

These Torches are particularly adapted for use in Factories, Foundries, Machine Shops, Rolling Mills, Blacksmith Shops, Warehouses, &c. They make a strong white light, are free from smoke and are not affected by wind or rain. They are convenient and portable. These Torches can be run at an expense of about one-half cent to one cent per hour, burning a bright, steady light which is ten times greater than the light of an ordinary gas burner.
Write us for prices. A liberal discount given to the trade.
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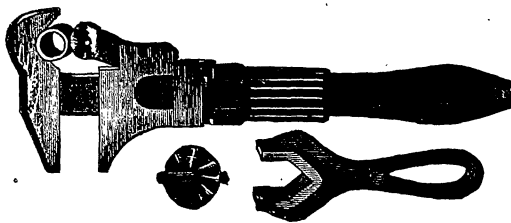


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Chicago Spring Butt Co.,
Chicago, Ill.

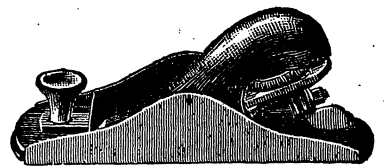
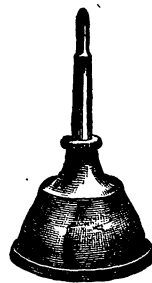
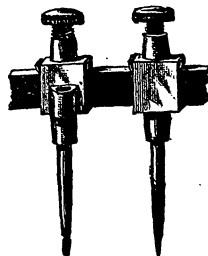
DOORS.	1	21	31	41	51
Jap'd Pair.					
Nickel Plated Pair.					
Bronze Plated Pair.					
Real Bronze Pair.					
Polished Brass Pair.					
1/4 to 1 in.	\$1.20	\$3.00	\$3.00	\$7.25	\$7.25
1 1/4 to 1 1/2 in.	1.50	3.75	3.75	8.00	8.00
1 1/2 to 1 3/4 in.	2.50	5.50	5.50	10.75	10.75
1 3/4 to 2 in.	4.00	7.50	7.50	18.00	18.00
2 1/4 to 2 3/4 in.	7.00	10.00	10.00	27.00	27.00
2 3/4 to 3 1/4 in.	10.00	14.00	14.00	26.00	26.00

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and Prices.

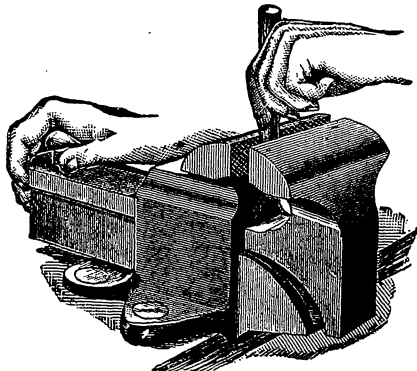
HIGH QUALITY TOOLS



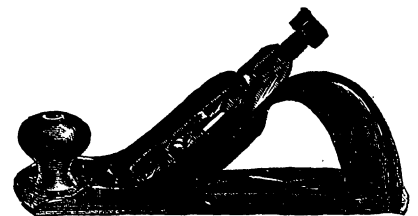
Donohue's Pat. Engineers' Wrenches,
Short or Long Sleeve Nuts, and
with Pipe Cutter.



Chaplin's Patent Iron Planes,
Corrugated Bottoms,
Checkered Rubber
Handles.



Stephens' Patent Vises, Quick Adjust-
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Challenge Iron Planes.
Simplicity of Construction.

Boardman's Pat. Wrenches, Excelsior Expansion Bits, Whitney Drills, Baxter's Wrenches,
Wood's Pat. Plumb and Levels, Devoe's Square Attachments, Gem Wrenches,
Malleable Oilers and Lamps, Pencil Attachments.

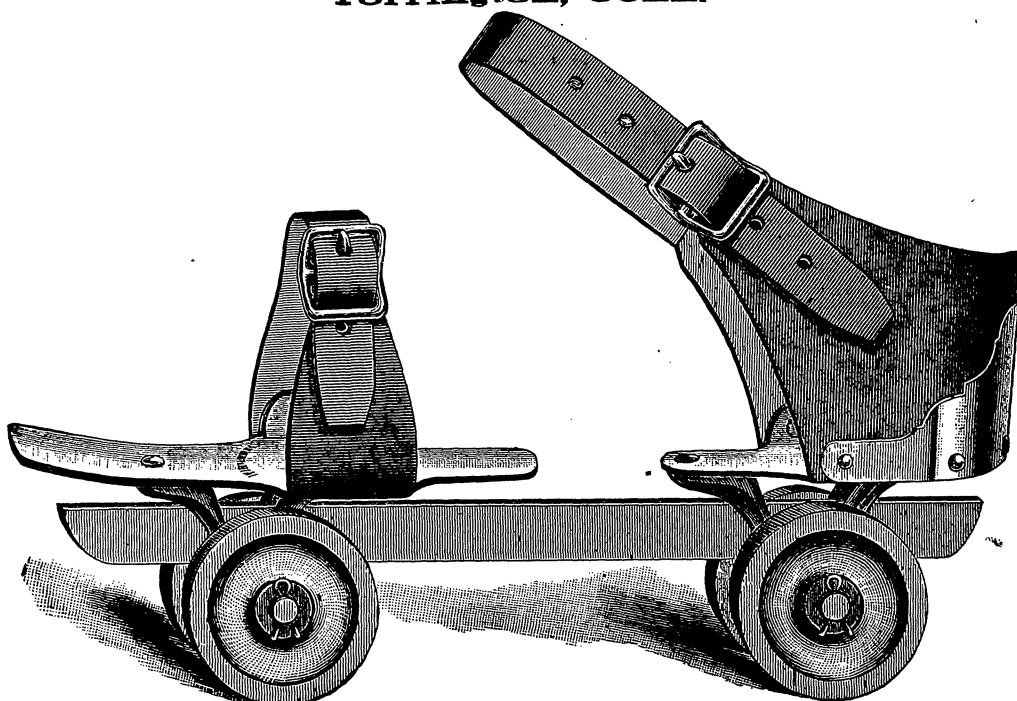
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SIDEWALK AND RINK ROLLER SKATES OF ALL KINDS.

—:MADE BY:—

THE UNION HARDWARE CO.,

Torrington, Conn.



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TOWER & LYON. - - - - 95 Chambers Street.

THE IMPROVED PROCESS GLUE CO.,

Purchasers of the Glue Business of The Le Page Co.

Gloucester, Mass.

New York City.

JOHN J. TOWER, of Tower & Lyon,
New York, President.

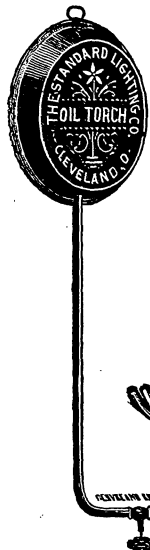
C. E. HUBBARD, Boston.
Treasurer.



The Improved Process Glue Co., having purchased from The Le Page Co., all its patent rights, formulas, glue stock and material, and having secured control of its glue factory, machinery, etc., will continue the manufacture of Liquid Fish Glues in all the various grades heretofore offered by The Le Page Co., under the personal supervision of Mr. Wm. N. LE PAGE, and under the Improved Process Patent issued October 26th, 1886. As is well known, the Improved Process by which these goods are made assures the highest strength with thorough uniformity as to quality, consistency and color. We call special attention to our Improved Process Family Glues, neatly put up for family use, and also to our Improved Process Carriage Glue for wood-work, put up in every variety of size and style. This Carriage Glue is undoubtedly the strongest and best glue for every variety of cabinet and wood-work, and has earned its high reputation. All our canned glues are put up with the new patent cap or fastening, patented January 22d, 1889, which has proved a great convenience and success. Our glues will be readily identified by our characteristic Blue Label, and the Trade-Mark shown at the head of this page. Send for Price-List. Messrs. Tower & Lyon will have charge of our New York office. Very truly yours,
THE IMPROVED PROCESS GLUE CO., New York Office, 95 Chambers St.

LIGHT YOUR DARK SHOPS CHEAPLY.

Give your men plenty of Light and they will do double work.

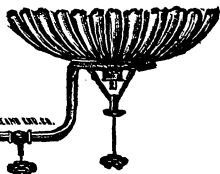


The Wall Torch has been used for several years as a means of illumination in Mills, Foundries, Machine and Car Shops, Tunnels, Street Stands, Band Stands, Smith Shops, etc.

While there are many cheap, inferior torches made which injure the sale of a good article, and condemn the Torch in general, our "Incandescent" Wall Torches are recognized as the best, and are now in use in the largest manufacturing establishments in the country giving PERFECT SATISFACTION, as is evidenced by the DUPLICATE ORDERS we receive from year to year.

They burn 150° Coal Oil, or 74° Naphtha, requiring a different burner for each.

In ordering be careful to state which is desired.



Price, for Single Torch, complete, \$2 each.

SPECIAL PRICE QUOTED FOR QUANTITIES.

THE STANDARD LIGHTING CO.,

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Dangler

Electric

Torches

FOR

GASOLINE

OR

OIL

14 JETS OF LIGHT



3 to 6
INCHES
LONG.

FOR lighting manufacturing establishments, such as Rolling Mills, Foundries, Machine Shops, Engine Rooms, &c., &c., with a convenient, portable brilliant, steady light, and by cheaper means than by Coal Gas.

SOLE MANUFACTURERS,

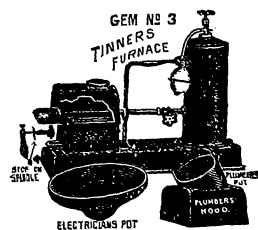
The Dangler Stove & Mfg. Co
Cleveland Ohio.

Burgess Gem Gasoline Furnaces.

All are equipped with the cylindrical slotted burner. For sale by all first class jobbers, or write us for descriptive circulars.

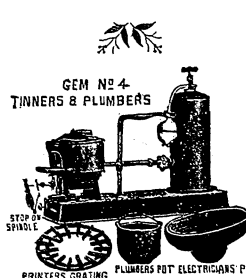
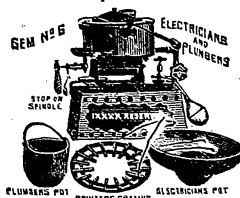
BURGESS SOLDERING FURNACE CO.,

J. BURGESS & SONS, Props. and Mfgs.,
Columbus, Ohio.

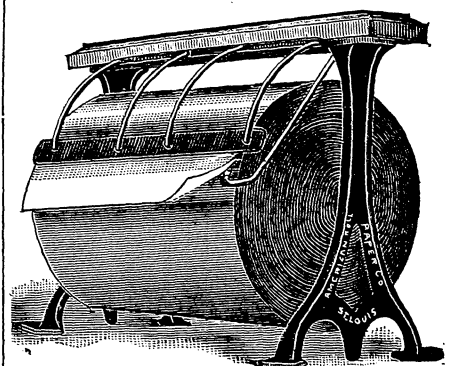


PRICE-LIST:

No. 3 and 4, Tin Reservoir, \$7.00 ea.
No. 3 and 4, Copper " 8.50 ea.
No. 6, IXXX Reservoir, 7.50 ea.
No. 6, Copper " 9.00 ea.
Plumbers' Hood for No. 3, 50¢ ea.
Plumbers' Pot for Nos. 3, 4 and 6, 50¢ ea.
Electricians' Pot for Nos. 3, 4 and 6, 75¢ ea.
Printers' Grating for Nos. 4 and 6, 50¢ ea.



All guaranteed to work out of doors or on roofs. Nos. 4 and 6 will melt metal and heat coppers at the same time.



THE ECONOMIC HOPKING ROLL PAPER CUTTER.

Made in all sizes, 6 to 36 inches, at \$1.50 each Japan and Hardwood Finish.

Made by the

American Roll Paper Co.,
St. Louis, Mo.



JONATHAN CROOKES & SON,

SHEFFIELD, ENGLAND,

Have placed the Agency for the United States for the sale of their celebrated

POCKET KNIVES, RAZORS, Etc.,

—: WITH :—

DAME, STODDARD & KENDALL, 374 Washington St., Boston, Mass.,

Who intend issuing a new list at reduced prices which will embrace many new styles.

— ALSO DIRECT IMPORTERS OF ALL KINDS —

English, German, French and Swedish Cutlery.

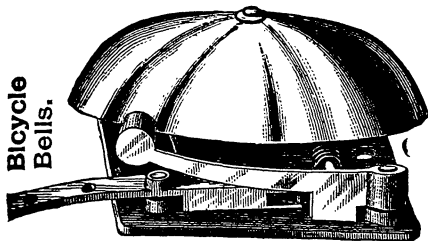
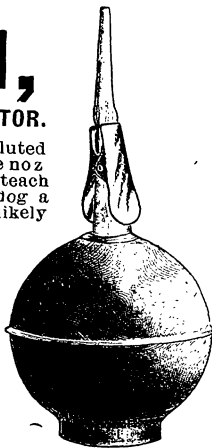


THE KI-YI, OR DOG EXTERMINATOR.

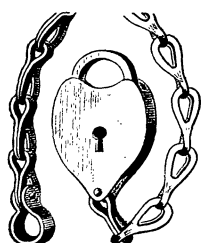
A few drops of diluted Aqua Ammonia from the nozzle of our Ki-Yi will teach the bicycle chasing dog a lesson he will not likely soon forget. It works like magic. As a rider puts it: "You could hear him howl ten squares."

Price each, 50 cts.

Manufactured by
A. U. BETTS & CO.,
305 WATER ST.,
Toledo, O.



BEVIN BROS. MFG. CO., Easthampton, Conn.
Manufacturers of
Sleigh Bells, House Tea, Hand, Gong Bells, &c.



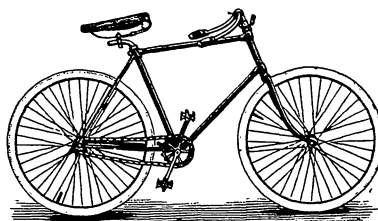
**Bicycle Locks.
Bicycle Bells.**

Especially Low Prices.

We manufacture hardware specialties of all descriptions to order.

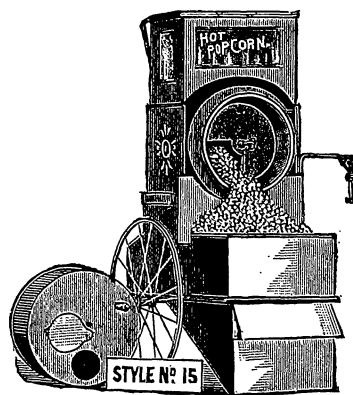
HAINES & ZIMMERMANN, 407 Cherry St., Phila.

Buy The \$100 Waverly And satisfy your customers.



STRICTLY HIGH GRADE EVERY WHEEL GUARANTEED. Get our Catalogue and prices to dealers. Our line will make you more money than any other goods made.

INDIANA BICYCLE CO.,
INDIANAPOLIS, IND.



OLSEN'S AUTOMATIC King of Corn Poppers, Peanut and Coffee Roasters.

The greatest wheel of fortune out, for any person 12 years and upward; \$1.00 to \$50.00 profit per day; 1500 now in use.

Guaranteed to have no equal. Agents wanted.

Write for illustrated catalogue and prices on Pop Corn, Shelled or on Cob, Balls, Bricks and other supplies.

A. B. OLSEN, Sole Mfr.,
218-220 E. Mo. Ave., - - Kansas City, Mo



Diamond Cycle Wrench,

WITH SPOKE GRIP ATTACHMENT.

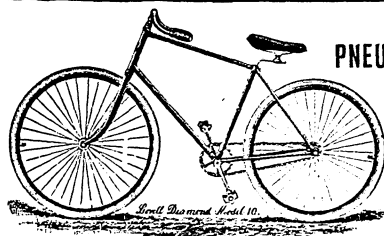
All Steel, Drop Forged, Case Hardened. Lightest, neatest and strongest. Weighs 5½ ounces, 4¾ in. long. Adjustment ¼ in. Write for prices and descriptive circular.

Manufactured by the

GENDRON IRON WHEEL CO.,

Sold by all Cycle and Hardware Dealers.
TOLEDO.

Lovell Diamond Cycles



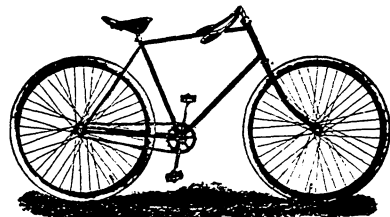
HIGHEST GRADE.
PNEUMATIC, CUSHION AND SOLID TIRES.
FOR LADIES AND GENTLEMEN

MANUFACTURED BY
John P. Lovell Arms Co.

BOSTON, MASS.
CYCLE CATALOGUE FREE.

WESTERN WHEEL WORKS.

BICYCLE



MANF'TRS

From \$20

to \$135.

MOST COMPLETE LINE MADE.

OFFICE AND FACTORY:

Wells, Schiller and Sigel Sts., and N. Park Ave., Chicago, Ill., U.S.A.

Dauntless Bicycles

SELL
ON SIGHT.

For the reason,
get Book
and Price.

THE TOLEDO BICYCLE CO., - TOLEDO, OHIO.

FALCON JUNIOR, for Boys.

FALCON JUNIOR COMBINATION, for Boys and Girls.

The only high grade juvenile wheels made. Full ball bearings, perfectly dust proof, $1\frac{1}{2}$ in. pneumatic tire, 24 in. wheels, graceful drop handle bars, combination cork and rubber handles.

The bearings are turned out of solid bar steel, and all material and workmanship are first class. Made in the same manner, of the same stock, with the same care as the large wheels. Good juvenile wheels are scarce, and ours are going rapidly.

The W. Bingham Company, CLEVELAND, OHIO.

THE ART OF SELLING.

By F. B. GODDARD.

12mo, Flexible Cloth, 50 Cents.

In this book the author lets the reader into the secrets of the accomplished and successful salesman, illustrates his tact and finesse, and tells how he masters men: but beyond this, the work embraces much information which will be instructive and useful to all classes of business men. Besides suggestions to buyers, it contains chapters on "Changes in Business Conditions and Methods," "Salesmen's Compensation," "Retail Merchants and Salesmen," "Saleswomen," "How to Read Character," with a collection of clearly and tersely put important Legal Principles and Decisions Governing Sales. Sent, post-paid, upon receipt of price, by

DAVID WILLIAMS, Publisher and Bookseller, 96-102 Reade St., N. Y.

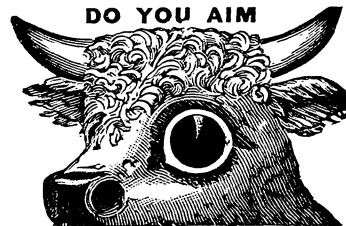
Yacht AND Boat Hardware.

L. W. FERDINAND & CO.,

BOSTON, MASS.

Send for 212-Page Catalogue.

DO YOU AIM



To Make a Bull's Eye

In Your Business or at the Range?

If you deal in ARMS or AMMUNITION or shoot a Rifle, Pistol or Shot Gun, you will make a HIT by sending for the IDEAL HAND BOOK.

IDEAL MFG. CO., New Haven, Ct., U. S. A.

Please mention *The Iron Age* when you write.

The HENRY C. HART MFG. CO.,

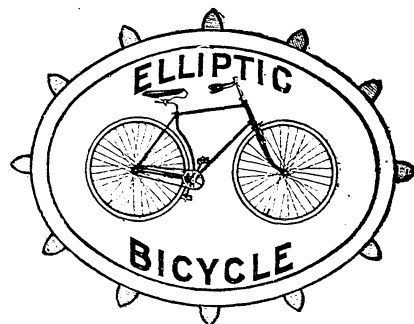
DETROIT, MICH.

MANUFACTURERS OF

Hardware Specialties.



TOY SAFES.



WORLD'S RECORDS.

1-4 Mile, flying start,	:26 15	ONE
1-4 " standing start,	:30	
1-2 " flying start,	:55 1-2	MILE,
1-2 " standing start,	:58 3-5	
1 " flying start,	1:56 4-5	1:56 3-5.
1 " standing start,	2:04 3-5	

SEND FOR CATALOGUE.

FREEPORT BICYCLE MFG. CO.

Freeport, Ill



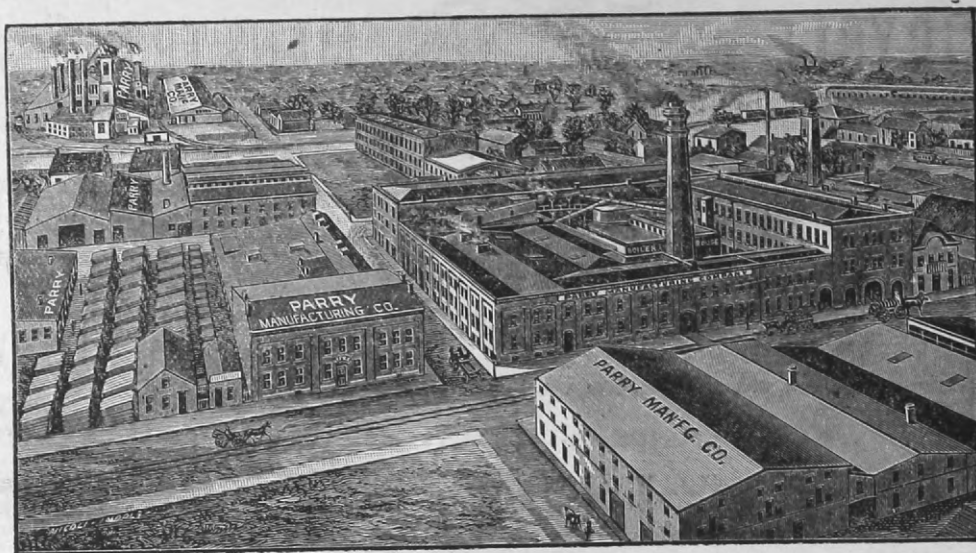
The Hardware Trade

Can buy this buggy for L. E. X X.
 Retails for \$75.00.

PARRY MFG. CO.,

Indianapolis, Ind.

The
 Largest
 and
 Best Equipped
 Factory
 on Earth
 for
 Producing
 Superior
 Vehicles.



This GUN has rebounding locks and the barrels can be taken off and put on again without cocking the arm, and when cocked the hammers may be let down gradually, and without the full force of the blow. It is simple in construction, having very many less pieces than any other hammerless gun.

Easily Tipped and Cocked,
 Damascus Barrels,
 Handsomely Engraved,
 Italian Walnut Stock.

SEND FOR DESCRIPTIVE
 CATALOGUE.



New Hammerless Double Gun,

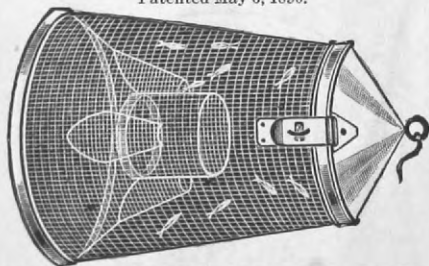
MANUFACTURED BY

FOREHAND ARMS CO.

Worcester, Mass., U.S.A.

PRICE VERY LOW.

Patented May 6, 1890.



LITTLE DAISY MINNOW TRAP.

A sure thing for good, live minnows. Will last a lifetime. Price, single trap, \$3.50. Liberal discount to the trade.

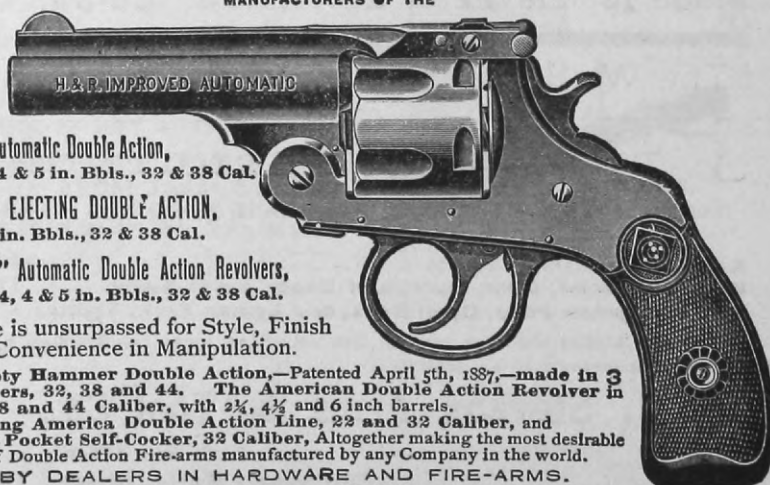
Illinois State Fish Commission,
 Office of S. P. Bartlett, Sec'y.,
 QUINCY, ILL., Jan. 19, 1892.

Messrs. Cochenour & Wilson, Olney, Ill.
 After two years' use of your "Little Daisy Minnow Trap" I find that it does its work well and satisfactorily. It is a source of great gratification to me to have fresh, lively minnows when I want them, and these your trap furnished me. I can cheerfully recommend it to anglers as a valuable addition to their outfit.

Yours respectfully,
 S. P. BARTLETT, Sec'y Ill. State Fish Com.
 ED. C. WILSON, Exclusive Manufacturer,
 OLNEY, ILL.

Harrington & Richardson Arms Company,

MANUFACTURERS OF THE



Improved Automatic Double Action,
 3 1-4, 4 & 5 in. Bbls., 32 & 38 Cal.

IMPROVED EJECTING DOUBLE ACTION,
 3 1-4 in. Bbls., 32 & 38 Cal.

"Premier" Automatic Double Action Revolvers,
 3 1-4, 4 & 5 in. Bbls., 32 & 38 Cal.

This line is unsurpassed for Style, Finish
 and Convenience in Manipulation.

The Safety Hammer Double Action.—Patented April 5th, 1887,—made in 3
 Calibers, 32, 38 and 44. The American Double Action Revolver in
 32, 38 and 44 Caliber, with 2 1/4, 4 1/2 and 6 inch barrels.

The Young America Double Action Line, 22 and 32 Caliber, and
 The Vest Pocket Self-Cocker, 32 Caliber, Altogether making the most desirable
 line of Double Action Fire-arms manufactured by any Company in the world.

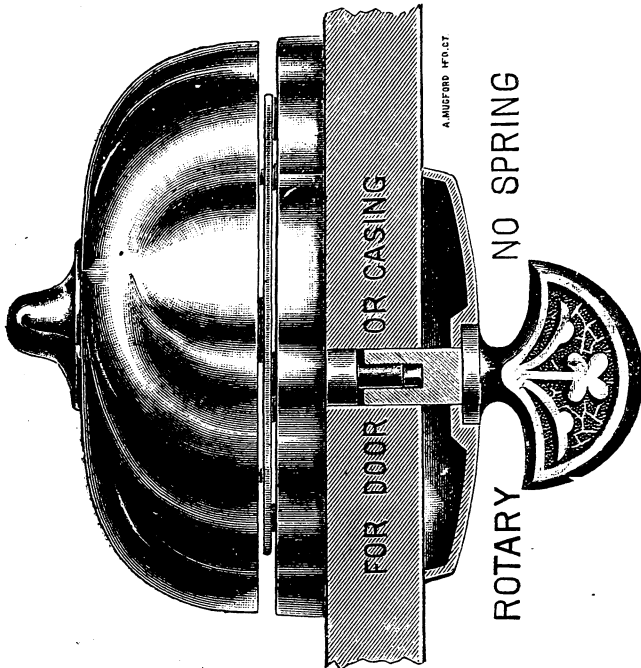
SOLD BY DEALERS IN HARDWARE AND FIRE-ARMS.

WORCESTER, MASS., U. S. A.

NEW DEPARTURE "ROTARY" DOOR BELLS.

ELECTRICAL RESULTS.

(PATENTED JULY 14, 1891; MARCH 29, 1892.)



Simply turning the knob about ONE-FOURTH IN EITHER DIRECTION produces about TEN CLEAR, FULL tones, which, though not startling or annoying, can be better heard all through the house than any bell ever made to imitate Electrical Results.

3 INCH.

No. 91, - - - - - Nickel Plated.
No. 92, - - - - - Bronze Plated.

PER DOZEN, \$20.00

3 1-2 INCH.

No. 101, - - - - - Nickel Plated.
No. 102, - - - - - Bronze Plated.

PER DOZEN, \$24.00.

No. 101 and 102.

LIBERAL DISCOUNT TO THE TRADE.

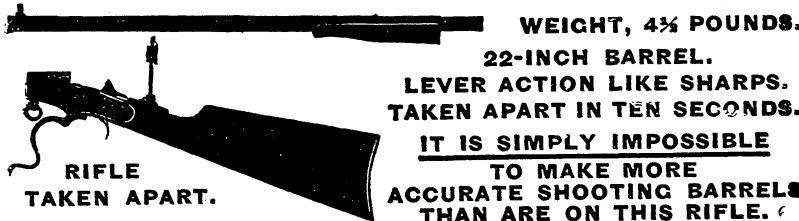
JOHN H. GRAHAM & CO., 113 CHAMBERS ST., NEW YORK CITY.
GENERAL AGENTS.

A Triumph in Small Bore Rifles.

STEVENS' "FAVORITE" RIFLE.



Made for the 22 or 25 Rim Fire Cartridge.



No. 17. Plain Open Sights.....\$12.50
No. 18. Vernier, Open Back, and Beach Front Sights..... 17.00
No. 19. Lyman Peep, Open Back, and Lyman Front Sights, 17.00

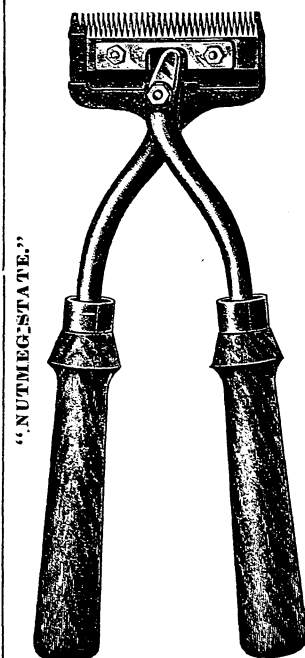
A 60 Page Catalog showing our full line of Fire Arms with **TRADE PRICE LIST** sent with pleasure to all dealers.

J. Stevens Arms & Tool Co.,

P. O. Box 5729.
Chicopee Falls, Mass. U. S. A.

Edward S. Hotchkiss,

MANUFACTURER OF HARDWARE,
BRIDGEPORT, CONN.



AMERICAN TOOL COMPANY,

NEW YORK,
MANUFACTURERS OF

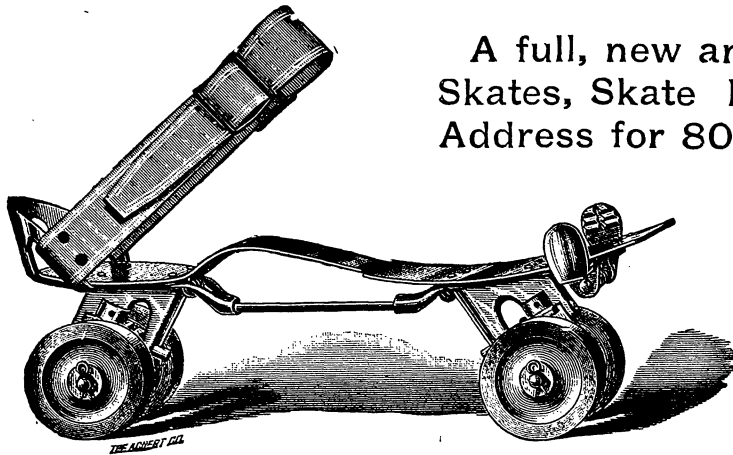
TOOL CHESTS

Of all sizes, complete with tools, for Hardware, Toy Notion and Variety trades.
Factory and Salesroom.

200 West Houston Street, near Varick.
Also Machinists' Tool Chests, empty. Illustrated Catalogue and prices furnished on application.

HENLEY'S CELEBRATED RINK

AND CLUB ROLLER SKATES.



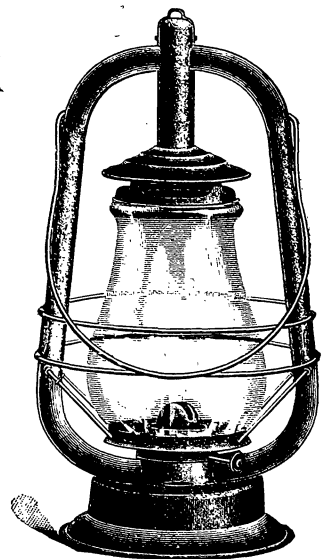
A full, new and complete stock of Roller Skates, Skate Repairs and Rink Supplies. Address for 80 page catalogue and prices,

M. C. Henlev,
RICHMOND, IND.

You Reach Bottom



at once by dropping
a postal for list and
prices to

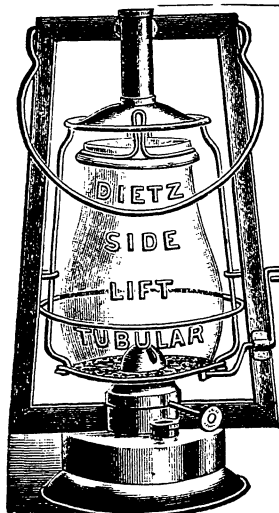


OHIO LANTERN CO.,

= = =

Tiffin, Ohio.

SURPRISE TUBULAR.



ESTABLISHED 1840.

A WORD TO THE WISE IS SUFFICIENT.

When you purchase a Lantern, Street Lamp or Driving Lamp, remember the

"DIETZ" Make

is the best. Our goods have stood the test of time and are safe and reliable. The name "DIETZ" is plainly stamped on them. Our specialty is Tubular Lanterns, Street Lamps and Driving Lamps. We make a large variety being the oldest and largest house in our line

ASK FOR THEM!

R. E. DIETZ COMPANY,

New York, 60 Laight St. U. S. A. Chicago, 25 Lake St

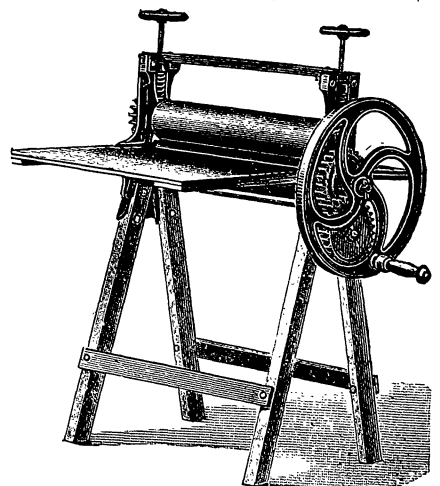
The Family Mangle.

WARRANTED TO DO

Better Work than Hand-work.

SAVES all the fuel.
two-thirds the work.
Keeps the linen whiter.

We Guarantee Every Machine.



Send for descriptive circular of

THE LANG MFG. CO., Racine, Wis.

Agents Wanted.

DETROIT CORK-SCREW CO.,

DETROIT, MICH., U. S. A.

Manufacturers of

The Davis Cork-Screw,
The Davis Knife and Cork-Screw,
The Puddefoot Cork-Screw,
Columbus and Greeley
Cork Extractors.

Manufacturers of

Cut Worm
Spiral Screws and
Cork-Screw Novelties.
Cut Worm Cork-Screws
for the Bar Cork Puller

Send for Price-List and Discounts.



FIG. 3. Showing Davis cork-screw and fulcrum in position to pull cork.

KESNER'S

ALWAYS COOL SAD IRON HOLDER.

Indispensable to every Housekeeper and Laundry. Sells at sight and pays the Dealer a Large Profit. They pack closely and ship cheaply. Every Holder Guaranteed to give Absolute Satisfaction.

It is the best and only perfect Iron Holder made. It is strong, durable, unburnable, and will fit the handle of any Sad Iron. It never gets hot—**ALWAYS COOL**—instantly applied and self adjustable. Fastens with spring latch and opens with an automatic spring.

It is made on a two-part wood frame covered with heavy duck. The inside is lined with asbestos—a positive non-conductor of heat. When closed on the handle of the iron an extra heavy nickel plated brass shield prevents the heat from striking the hand.

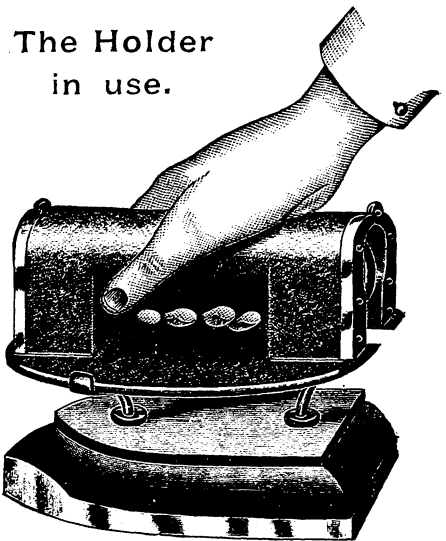
SOLD BY ALL HARDWARE JOBBERS

If your jobber does not carry them, order a sample gross direct from us. No dealer can afford to be without them.

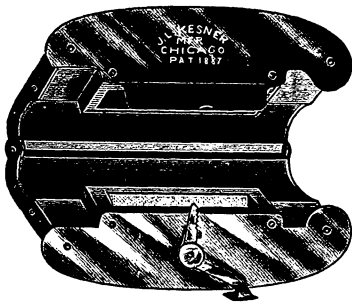
For Circulars, Testimonials and Price-List write the Manufacturers,

J. L. KESNER & CO.,

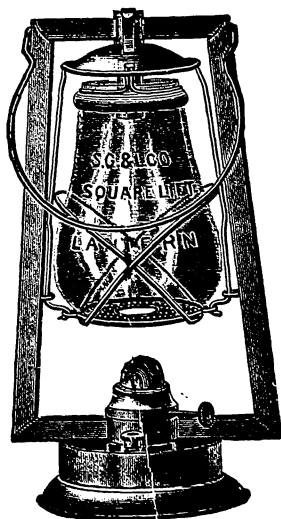
76-78 E. Illinois Street, CHICAGO, ILL.



The Holder
in use.



Patented Oct. 25th, 1887, and others pending.



Square Lift Wire Lantern. Open.

Steam Gauge AND Lantern Co

Syracuse, N. Y.

Western Branch: 25 Lake St., Chicago, Ill.

—MANUFACTURERS OF—

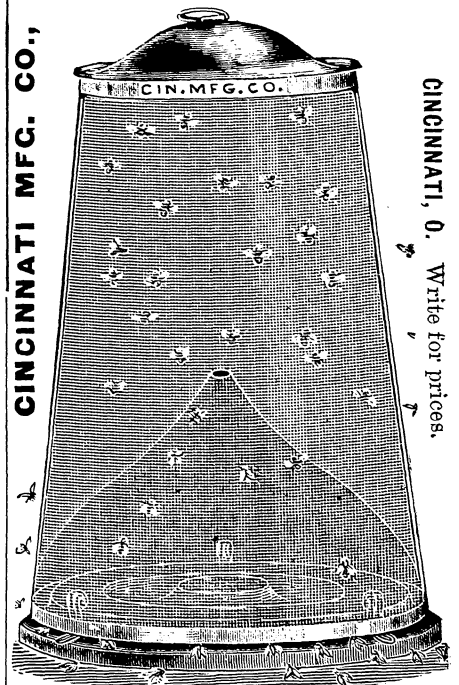
Standard Tubular Lamps and Lanterns.

THE BEST IN THE WORLD.

Tubular Lanterns,
Tubular Street Lamps,
Tubular Hanging Lamps,
Tubular Station Lamps,
Tubular Driving Lamps, etc.

LEADER FLY TRAPS.

Corn Poppers and other Wire Goods,
Manufactured by



CINCINNATI MFG. CO.

CINCINNATI, O. Write for prices.

THE MALIN & CO.

34 and 36 Long St., Cleveland, Ohio

Manufacturers and Dealers in Steel, Copper and Brass Wire of all kinds.

Patent Spooled Wire

For Retail Hardware Trade and Wire Specialties.

Dealers who handle it do away with the Broken Bundle Business and sell small quantities by the spool only. It is a convenience for both dealer and consumer. It is Shellac Coated and Cannot Rust: is wound like spool cotton on 1 oz., 1/4 lb., 1/2 lb., 1 lb. and 5 lb. Spools.

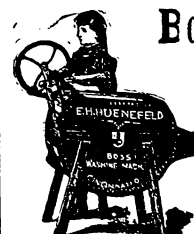
Special Wires Spooled for manufacturing purposes. Send for illustrated Catalogue and prices. Sold by all Hardware Dealers.

BOSTON OFFICE,

JOHN WALES & CO., No. 5 Winthrop Sqr.



Retail Stock contains 147 Spools



Boss Washing Mch.

An Entirely New Invention.
Double acting, working with two cylinders in opposite directions. The greatest saver of household labor ever invented.

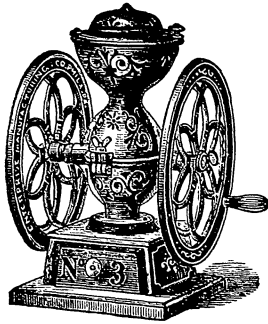
E. H. HUENEFELD,
CINCINNATI, O.
Send for Circular

THE ENTERPRISE M'F'G CO. OF PA.,

THIRD AND DAUPHIN STREETS, PHILADELPHIA.

COFFEE MILLS.

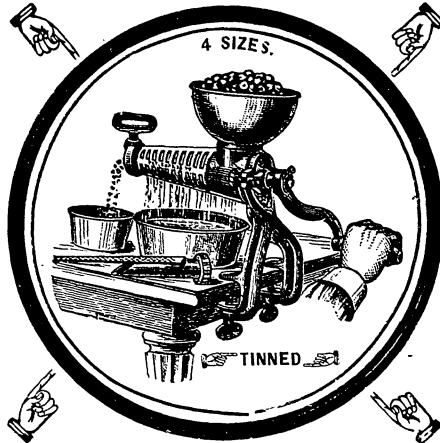
24 Sizes.



\$1.25 to \$100.00.

FRUIT PRESS.

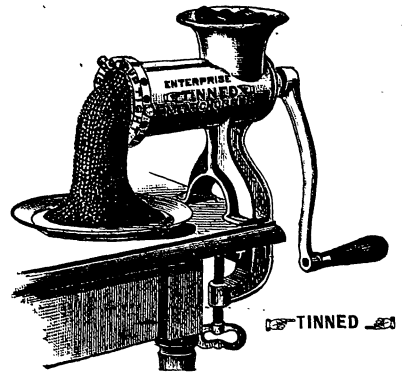
4 SIZES.



No. 24. Price, \$3.00.

MEAT CHOPPERS.

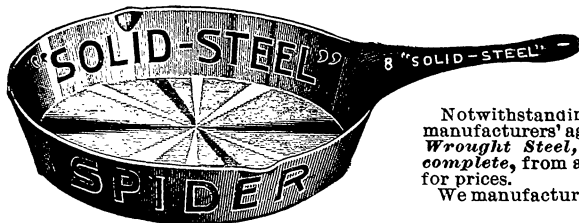
15 Sizes.



\$2.00 to \$275.00.

FOR SALE BY THE HARDWARE TRADE. SEND FOR OUR LATEST CATALOGUE.

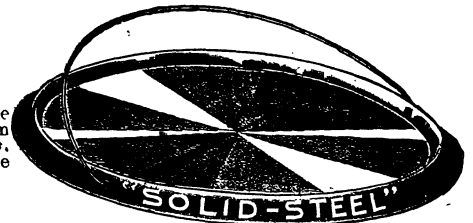
"SOLID-STEEL" SEAMLESS HOLLOW WARE.



No Seams, no Rivets in "Solid-Steel" Ware.

BRILLIANT FINISH.

Notwithstanding the claims made by some manufacturers' agents, our spiders are made from *Wrought Steel, Without Seams or Rivets, complete, from a single piece of metal.* Write for prices. We manufacture our own goods.



Made either with Balls or Solid Handles.

The Cleveland Stamping & Tool Co., Cleveland, O.

We are in shape to figure on light and heavy stamping, and in addition to the above we build Dies and Stamping Machinery.

ADJUSTABLE KNIFE

DIRECTIONS
LOOSEN BOLTS.
SET KNIVES FOR DESIRED CUT.
TIGHTEN BOLTS

KRAUT CUTTER

PATENT APPLIED FOR.

PERFECT.
SIMPLE.
HANDSOME.

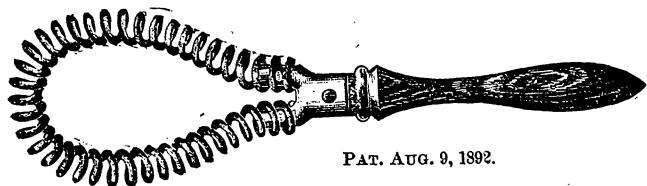
TUCKER & DORSEY MFG CO. INDIANAPOLIS, IND.

1893 CATALOGUE JUST OUT
HOLLOW WARE and HARD WARE SPECIALTIES.
The STUART & PETERSON CO.
PHILADELPHIA, PA., U. S. A.

American Stamping Co.,
Manufacturers of
All Kinds of Tinware and Sheet Metal Goods.

N. Y. Office and Salesroom, 104 & 106 John St.
Factory, 103 to 119 N. 3d St., Brooklyn, E. D., N. Y.

THE BOSS DUST BEATER.



PAT. AUG. 9, 1892.

NEAT, DURABLE, AND DOES THE BUSINESS.

For removing dust and filth from Clothing, Upholstered Furniture, Rugs and Carpets it is just the thing. Will raise the nap and so improve the appearance. Will not, like other Dust Beaters, leave marks, nor tear the fabric. The coil is of steel wire secured in a malleable iron socket and attached to an enameled wooden handle. Just what everybody wants.

Retail Price, 25 Cents. Sent by Mail, 35 Cents.

PEABODY & PARKS,
Manufacturers, TROY, N. Y.

"PURITAN"

COOKERS, COFFEE POTS AND
OTHER SPECIALTIES.



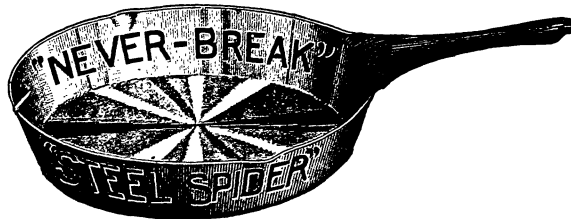
Cooks Quicker than any other.
Porcelain Rice Boiler made.

"NEVER-BREAK"

Wrought Steel Spiders

Wrought Steel Griddles, Kettles, Stew Pans, Stew Pots, Maslins,
Scotch Bowls, Hotel Sauce Pans, &c.

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"MIRROR POLISH," the only Perfect Plain Steel Finish

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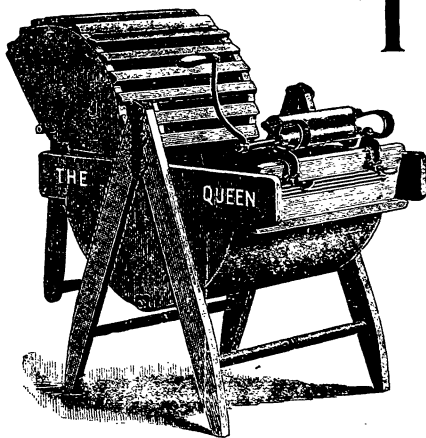
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Roasting and Baking Pan.
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Justly named, for it's far and
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produced to wash clothes Clean
without hand rubbing. Deal-
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Conveniences such as the
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The user does not abrade the skin of the
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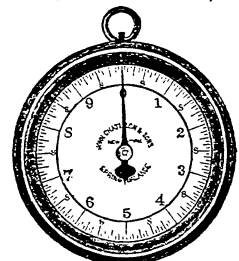
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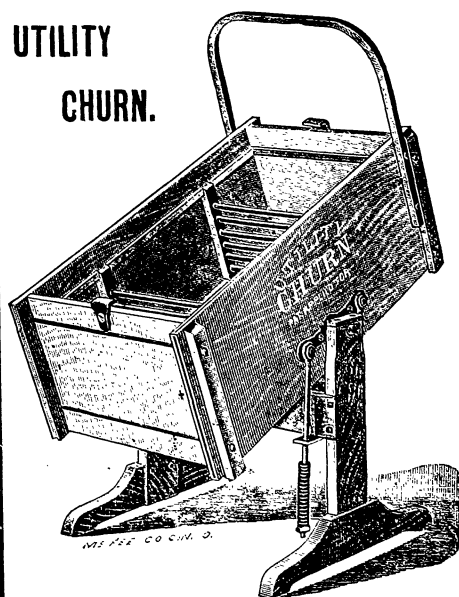


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Put Weaners on Calves and turn them
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"It is the only machine I ever had that worked perfectly in every way."
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UTILITY WASHBOARD.

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GUARANTEED TO MAKE 10 %
more butter with less than one-fourth
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"I am satisfied that this Churn is in
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the way of butter that the cream may con-
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The best protected Board
in the market.

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Because the sides of the
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employed. The lines pre-
sent a beauty and sym-
metry never before at-
tained.

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The most thorough **WASHING MACHINE** on earth.
Guaranteed to do better work and to require not
over one-quarter of the labor of any machine in the
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of compensating springs, as the load in the machine
itself furnishes nearly all of the power necessary to
operate it. You will observe by looking at cut of
this machine that we combine with it, attached to
the under side of the lid, a washboard, which can be
used for rubbing extra soiled portions of the cloth-
ing, which effects a saving of once handling, thus
combining in the one machine a washing machine,
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Have'nt you handled a variety of washing machines; some
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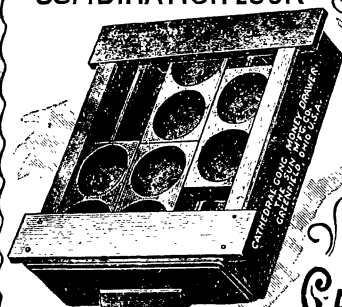
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Order one and see for yourself if it's not so.

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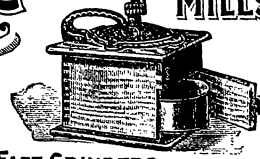
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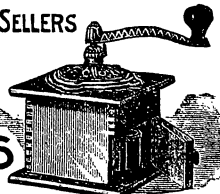
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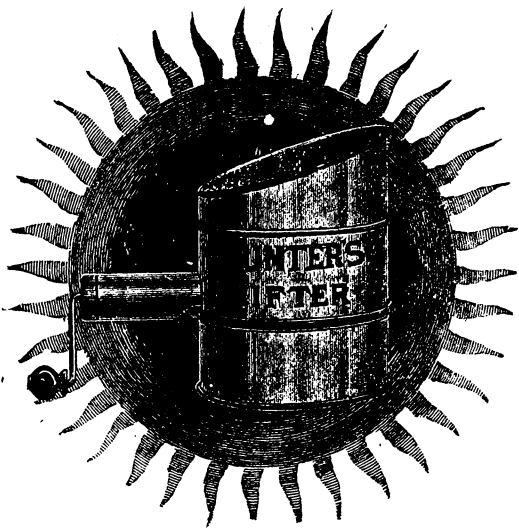
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FAST GRINDERS
QUICK SELLERS



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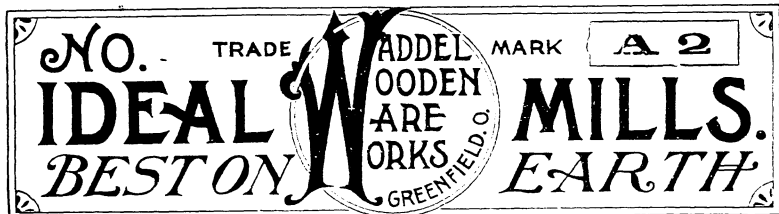
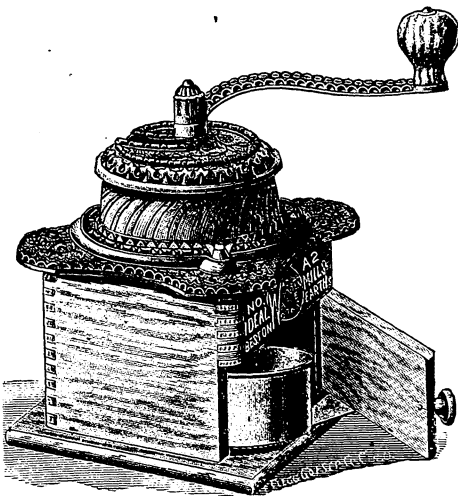


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That the Hunter Sifter made by us is not a sifter "that's just like it" or "that's just as good." There's only one genuine Hunter Flour Sifter and that's ours, yours for the price.

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Guaranteed
to grind faster, better
constructed and finished than
any other mills made. Specify
them in your
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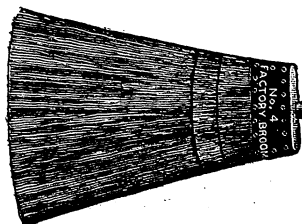
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Designed for light work in Woolen, Cotton, Knitting, Cloth and Yarn Mills, and for purposes where a light, strong, cheap and good



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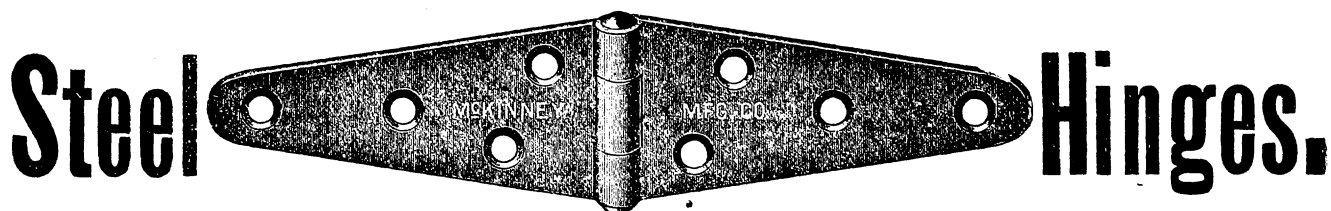
Brooms for other purposes, and Brushes. Write for prices.

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WE CLAIM

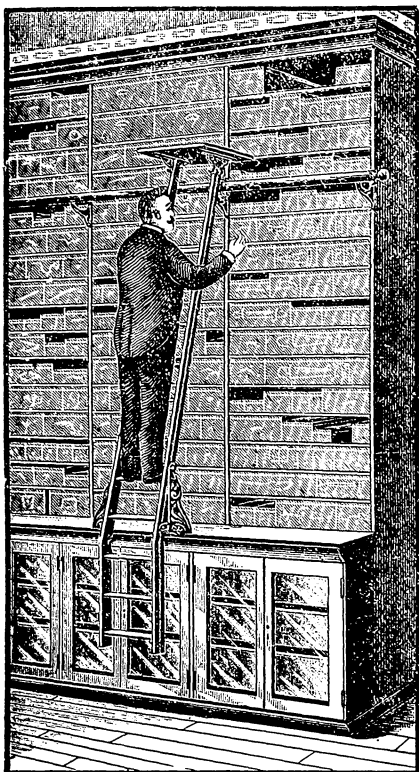
That one pair of our Celebrated Steel Hinges will outwear two pair of the Flimsy Invention now being forced upon the attention of the trade.

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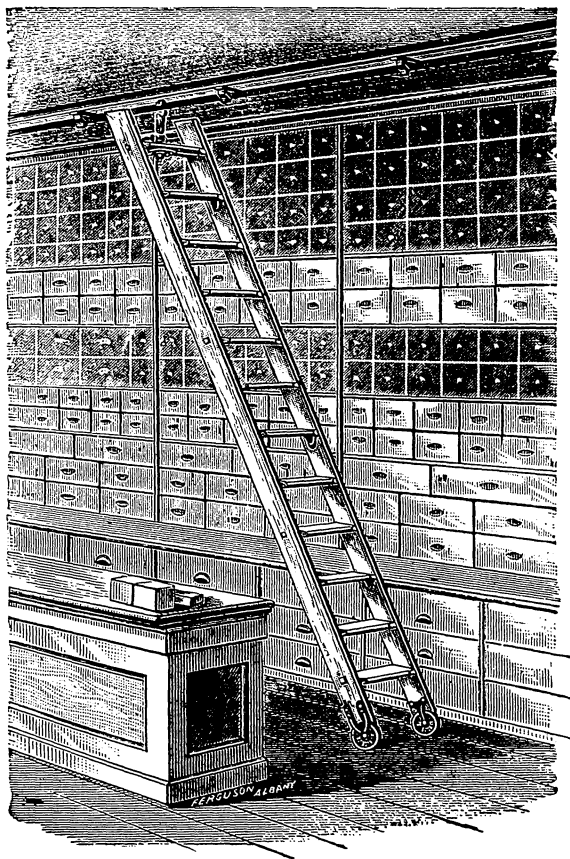
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The Newest, Neatest, Simplest, Easiest Operated and Safest Store Ladder made.

Ladders are not Suspended, but Supported from below on wheels. Move easier with operator on than others when empty. Highly finished, and very hand some. Made in different grades and prices to suit. Send for illustrated catalogue and prices. See this space next week for other styles.

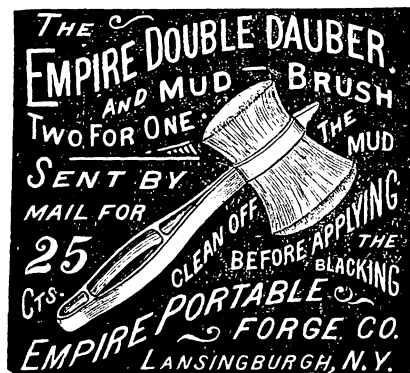
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THE "NOISELESS" STORE LADDER.



The latest and best. Perfectly noiseless. Neat in appearance.

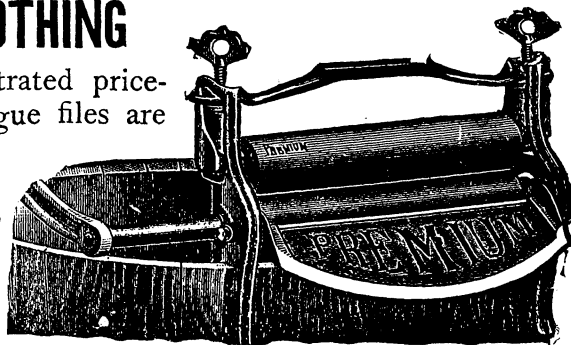
Manufactured by
M. CROISSANT,
ALBANY, N. Y.



N. Y. Office, 103 Chambers St., W. H. QUINN, Manager

IT COSTS NOTHING

to send for our illustrated price-list, and your catalogue files are incomplete without it. Write to the Factory, Montpelier, Vt., or to our Chicago store, 68 Lake St.



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IN MANY ELEGANT PATTERNS AND BEAUTIFUL DESIGNS, FOR FINE RESIDENCES, OFFICES AND PUBLIC BUILDINGS. GENUINE BRONZE AND RUST-PROOF IRON-HOUSE TRIMMINGS IN MORE THAN TWENTY HANDSOME FINISHES. "VASSAR" CYLINDER LOCKS ARE NOT SURPASSED BY ANY CYLINDER LOCKS MADE FOR STYLE, SECURITY, DURABILITY, OR ANY OTHER FEATURE THAT DISTINGUISHES A REALLY GOOD LOCK. THEY ARE SPECIFIED BY ARCHITECTS EVERYWHERE.

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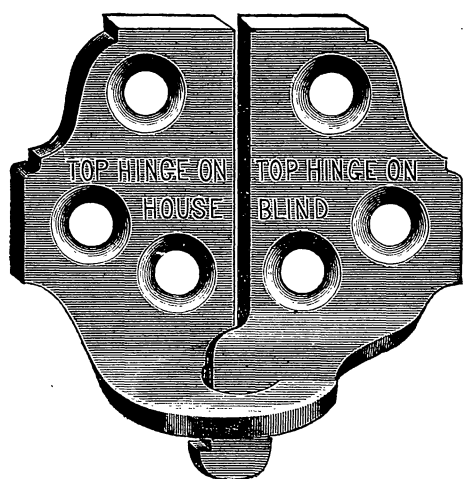
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73 WABASH AVE.

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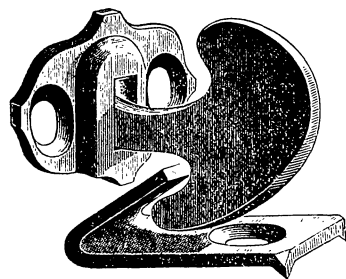
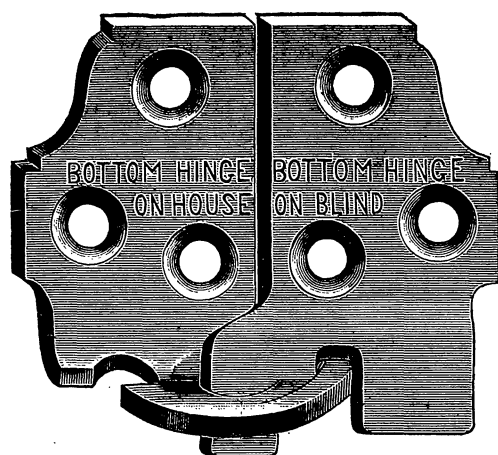
NEW BRITAIN, CONN., AND 79 CHAMBERS ST., NEW YORK,

PRODUCERS OF

**Butts, Hinges, Door Bolts, Blind Trimmings,
ETC.,
FROM WROUGHT STEEL.**



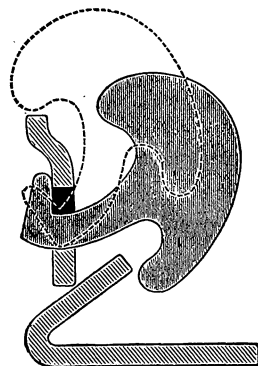
**Wrought
Steel
Gravity
Blind
Hinges**



FOR

Wood.

PATENTED.



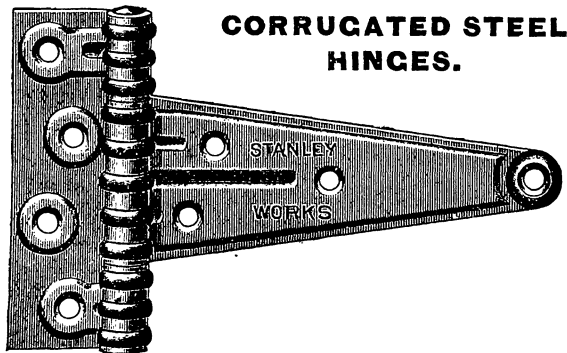
These Hinges lock the blind by the action of gravity, and, being made from heavy gauges of wrought steel, will not break.

Their improved construction enables the blind to be securely locked when open and the hinge to be unlocked without lifting the blind.

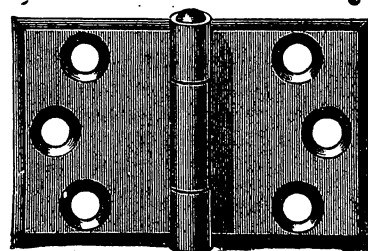
The improved sill catch prevents the closed blind from being opened from the outside.

These Hinges are applied in substantially the same manner as those ordinarily in use and require the same number and sizes of screws

Each dozen set is packed in a neat paper box. Ten dozen sets in a case.



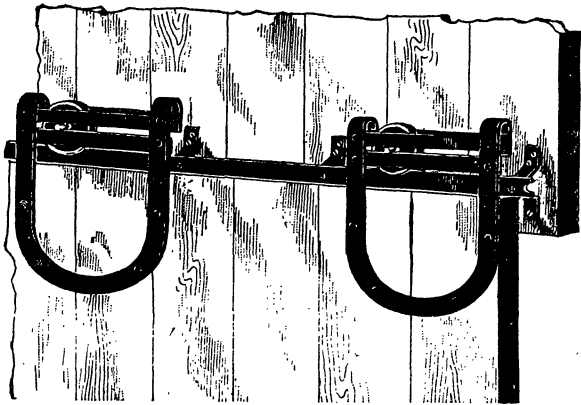
**CORRUGATED STEEL
HINGES.**



**WROUGHT STEEL
BUTTS.**

ANYTHING MADE FROM WROUGHT STEEL.

CORRESPONDENCE AND CATALOG FREE.



Lane's Patent Steel Barn Door Hangers,

"O. N. T." Track for same.

The first Anti-friction Steel Door Hanger placed upon the market and to-day stands as the original and best. Sold in all the States of the Union, as well as abroad. Also Lane's Noiseless Steel Parlor Door Hanger, using Single Steel Track, a great success.

Lane's Pat. Self-measuring Faucet, measuring liquids as drawn.
Swift's Coffee Mills in great variety.

Manufactured by **LANE BROS.**, Poughkeepsie, N. Y.

JOHN H. GRAHAM & CO., General Agents, 113 Chambers St., NEW YORK.

"Friends, Romans, Countrymen!"

Lend Me Your Ears."

So spoke Marc Antony a few years ago at the burial of the immortal Cæsar. We did not commence as long ago as our friend Antony, but we have done a power of talking. He had the ears he wanted in front of him, while we have to do our talking by proxy; but like our worthy friend Marc, we get there just the same. You have heard us talking about

THE CRAIG LOCKS

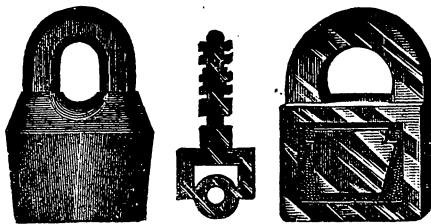
for six or eight months only, but you did not know that we had a factory and force of hands working on these locks for two years before we even attempted to sell a lock, as we intended to sell a perfect lock or none at all; so that when we guarantee these locks you can be sure we know what we are talking about. We also know what we are talking about when we say that every Tom, Dick and Harry cannot open these locks with a bent wire or anything else. When your customers want a lock that will stay locked until they get ready to open it, you sell them **THE CRAIG**. We guarantee the lock to you and you can guarantee it to the customer. It won't come back. You don't have to explain how it works. The directions in each box are plain enough for any child to understand. Suppose you send for a catalogue and let us get acquainted.

KEYLESS LOCK CO., - I. A. 197 South Canal St., Chicago, Ill.

KEYSTONE LOCK WORKS,

—Established 1879.—

E. T. FRAIM, Lancaster, Pa., U. S. A.
MANUFACTURER OF



Patent Inter-Locking Tumbler Scandinavian or Jail PADLOCKS, in 56 grades and sizes. Key and Self-Locking. Brass, Bronze, Steel and Malleable Iron. Red, Black, Bower-Barff and Bright Brown finish. Also a full line of fine flat padlocks in Bronze and Steel. All fully described and illustrated in our new catalogue, furnished free to the trade.

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General Agents, 97 Chambers St. New York

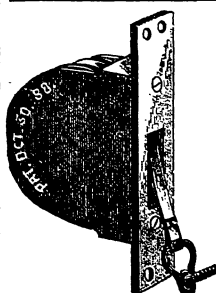
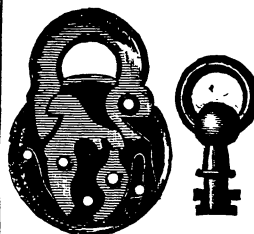
PATENT PERFECTION PADLOCK

Eight Tumblers. Key Turning Both Ways.

Sizes; $\frac{1}{4}$ inch to $2\frac{1}{2}$ inches; of cast bronze. Defies competition for quality and price. No steel or iron used, cannot rust, and cannot be picked. Also, $\frac{1}{2}$ and $\frac{3}{4}$ inch Padlocks, opened with a common pin, in brass and nickel, for cats and small dogs. The best Railroad Switch and Car Lock in the world. Adopted by the United States Treasury for bonded warehouses.

AMES SWORD CO., Chicopee, Mass.

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Merit Always Wins.

THE CALDWELL SASH BALANCE

Has been the standard for five years.

Write for our new catalogue of Hardware Specialties.

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READING HARDWARE CO., Agents.

81 Reade St., New York.

514 Commerce St., Philadelphia.

73 Wabash Ave., Chicago.

HARDWARE DEALERS

CAN RECOMMEND THE

CHAMPION METAL WINDOW SASH CHAINS

to their customers as a reliable substitute for Sash Cords, very strong and lasting (some in daily use ten years), and gives thorough satisfaction wherever used. The patented attachments are very simple and can be applied to any window.

MANUFACTURED ONLY BY

"THOMAS MORTON"

65 Elizabeth Street,

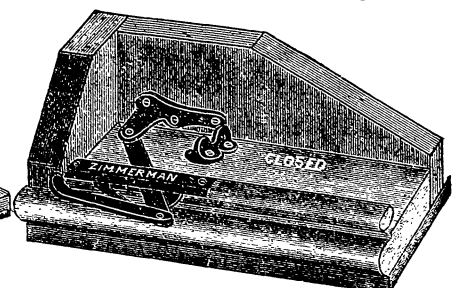
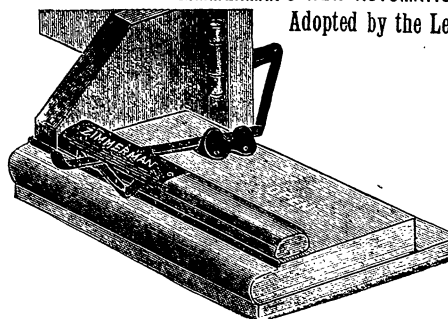
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ZIMMERMAN'S NEW AUTOMATIC INSIDE SHUTTER WORKER.

Adopted by the Leading Architects of the Country.

Beware of Infringements.



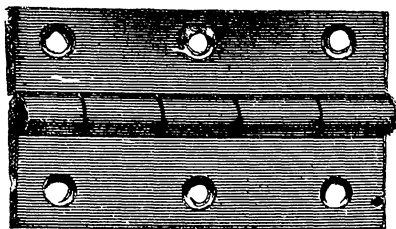
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Cast Brass Butt Hinges

IN STOCK AND FOR SALE BY

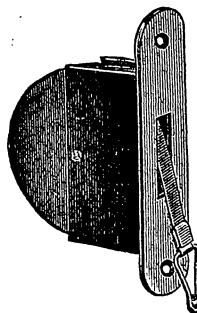
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Indispensable in Building Pullman Steel Frame Sash Balance.



- 1st. Because they require no box frames, and can be used in old as well as new houses.
- 2d. Applied as easily as a common pulley.
- 3d. Cost less money than weights and cord.
- 4th. Last three times as long.
- 5th. Warranted 10 years.

Write us for Catalogue, or any special information and don't get our Balance confused with others of inferior makes.

PULLMAN SASH BALANCE CO., Rochester, N. Y.

New York Office, 142 Chambers St.

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COMMON SENSE SASH BALANCE.



The Best and most Practical substitute for weights invented. The most Durable, the Cheapest and best device for all ordinary windows. Balances when in position are out of sight. No rivets, bolts or screws are used in putting it together, so that nothing can get out of order or need repairing. No cutting, boring or marring the sash, as the Balances are let into the jamb.

Manufacturers of Sash Balances, Sash Locks, Sash Lifts, Monitor Sash Irons.

STEWART & BAKER,

107 State Street, Rochester, N. Y.

No more **S**lamming
...Doors!

Our Combination

**Door Check
Lock and
Bumpers**

Holds
door
in
any
position

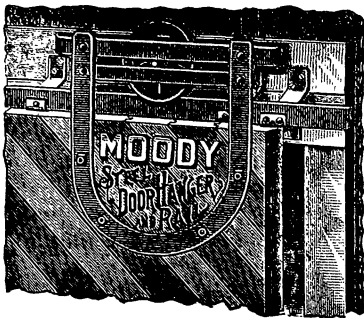
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for Circulars.

Unity Door Check Co.,

234 Lake St., Chicago, Ill.



VICTOR MFG. CO., Newburyport, Mass. STEEL RAIL.



Showing one-half set of hangers attached to door.



The Only Bracing Bracket Made.

PRICE-LIST.

HANGERS.	Per Doz. prs.
No. 5, to run 6 feet, $3\frac{1}{2}$ in. wheel,	\$10.00
No. 6, to run 10 feet, $4\frac{1}{2}$ in. wheel,	15.00
No. 7, to run 15 feet, $5\frac{1}{2}$ in. wheel,	22.00
RAIL, per foot.....	$8\frac{1}{2}$ cents

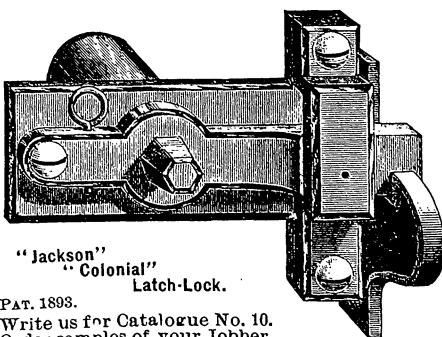
SOLID BRAIDED SASH CORDS, &c.

Picture Wire, Bright Wire Goods, Picture Nails,

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Mason Lines, Chalk Lines, Clothes Lines, Spool Wire,

OSSAWAN MILLS CO., Norwich, Conn.



"Jackson"
"Colonial"
Latch-Lock.

PAT. 1893.

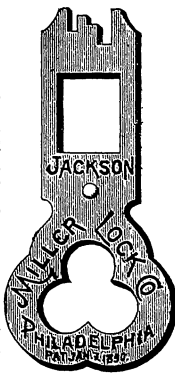
Write us for Catalogue No. 10.

Order samples of your Jobber.

used, permits $\frac{1}{8}$ inch adjustment as to wood, costs makes same trim as used on more costly lock.

THE LATCH STRING

replaced by a Lock. The Latch remains of handsome BRONZE. Operated by KEY from outside, by LIFT from inside. Thrown "OFF" by the PIN under the Latch. Made RIGHT and LEFT HAND, and readily adjustable from one hand to the other. Length of Latch 4 inches. Adapted to all doors that open inward; to GATES, GRILLS, ETC. When made in MASTER KEYED SETS is the cheapest fine BUILDING LOCK extant. No. 75 for $\frac{3}{4}$ inch wood, 3 plated steel keys, per doz. \$12. No 75 1 $\frac{1}{2}$ for 1 $\frac{1}{2}$ inch wood, three plated steel keys, per doz. \$12. BRONZE Escutcheon, if extra \$1.50 per dozen, and



MILLER LOCK CO., Lock Mfrs, - 4515 Tacony St., Philadelphia.



Patented
May 13, 1890.

Per Doz. pr.
No. 1 5 foot run \$15.00
" 1 $\frac{1}{2}$ " 8 " 18.00
" 2 " 10 " 22.00
" 3 " 12 " 26.00
Double Braced Steel
Track 6 & 8 feet
lengths, 100 per foot.

We are the original makers of steel covered hangers and all others are imitations. Beware of infringements, as we shall protect our rights.

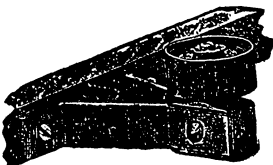
In our Steel Covered Hangers we have all the desirable features of the Best Hangers in the market, and with that we combine the cover for wheels SO NO ICE OR SNOW can reach the wheels, and making this cover as we do, we stiffen it so it is the strongest Hanger in the market, and we believe it is just perfect. Would be glad to have you try a small order and satisfy yourself.

Double-Braced Steel Rail.

PATENTED JUNE 12, 1888.

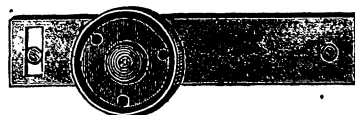
This rail being double-braced and double-riveted is the strongest rail in the market. Being braced both ways it will not sag. The joint is made so it is perfectly solid. It comes complete and ready for use, requiring only screws and screw driver for any man or boy to put it up in short order. It can be used for any grooved wheel Hanger, and a heavy door will not make it spring or tremble. Guaranteed to hold a door weighing 2,000 pounds, and used in connection with our Anti-Friction Hanger will work perfectly on large or small doors.

Cronk's Adjustable Stay Roller.



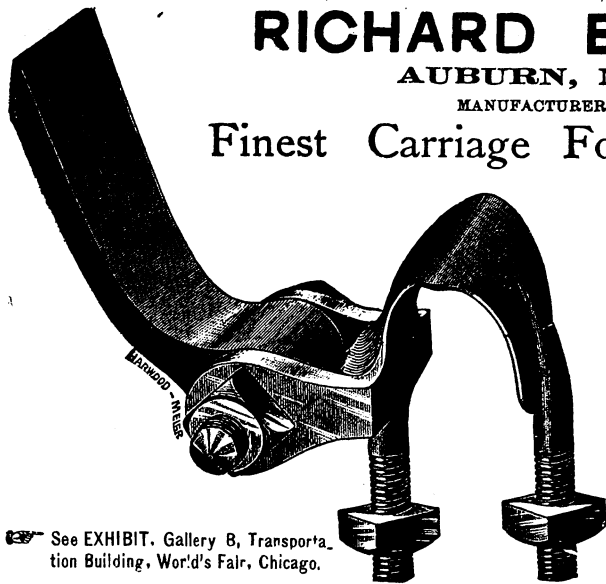
Made of wrought steel strap; cast block with slot adjusted by loosening bolt.

Cronk's Inside Adjustable Stay.



Is cheap, simple and durable, and much better than a cleat nailed on the floor for this avoids all friction and leaves no place for dirt to accumulate. \$2.00 per doz. No inside door can be properly hung without this stay.

Pacific Coast Agents, CHAS. L. PIERCE & CO., San Francisco, Cal.



RICHARD ECCLES,

AUBURN, N. Y.,

MANUFACTURER OF

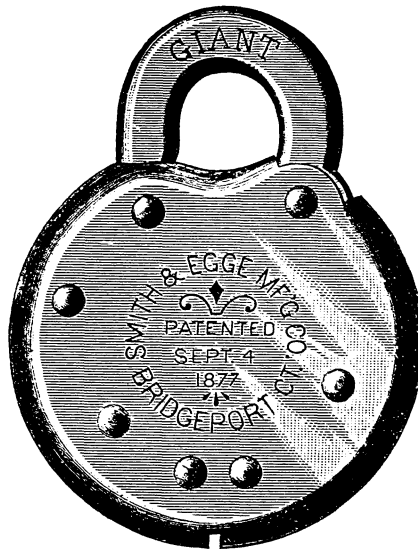
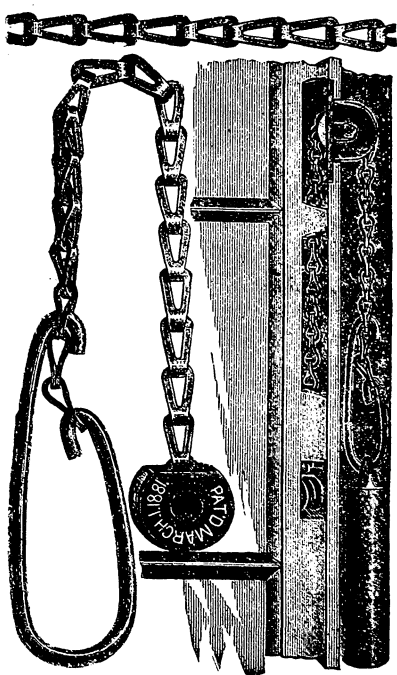
Finest Carriage Forgings, Couplings, Clips, King Bolts, Fifth Wheels, &c. Manufacture a full line Special Drop Forgings.

See EXHIBIT. Gallery B, Transportation Building, World's Fair, Chicago.

Send for Catalogue.

THE SMITH & EGGE MFG. CO.

BRIDGEPORT, CONN.



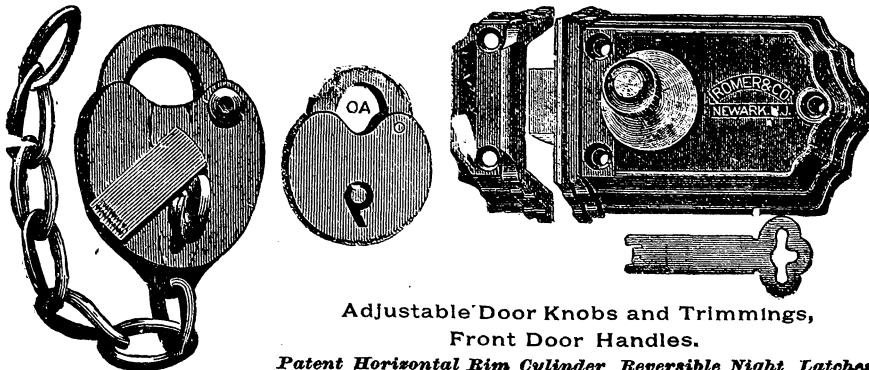
THE GIANT PAD LOCK.

Centennial Award. "Superior In Every Respect" This is one of the best selling locks in the market and affords the dealer a large profit. It is thoroughly and strongly made—of the best material—very handsome in appearance, and every Lock is warranted. Orders solicited.

THE GIANT METAL SASH CHAIN

is a substitute for cord in hanging weights to windows. It is manufactured by us only, and by automatic machinery, patented and owned exclusively by ourselves, and whereby we secure uniformity of construction and quality. We have been to great expense in producing a metal having all the qualities and conditions requisite for making suitable chain for this purpose, and to prevent other chain of the same pattern of link and of the same general appearance, but made from an inferior metal, being offered as the same thing, we patented the word "Giant" as a Trade-Mark, as applied to either metal or chain. Trade-Mark Registered April 16, 1878, and October 22, 1878, and our metal is therefore known in the market as "Giant Metal," and our chain as "Giant Metal Sash Chain."

ROMER & COMPANY, Manufacturers of PATENT JAIL LOCKS, BRASS and IRON PADLOCKS,



Adjustable Door Knobs and Trimmings, Front Door Handles.

Patent Horizontal Rim Cylinder Reversible Night Latches.

Illustrated Lists sent to the Trade on application.

275, 277 and 279 Passaic St., near Erie and D. L. & W. R. R. Depots, Newark, N. J.



FROST'S ANTI-RATTLER

Pat. Jan. 20, 1880.

Out One-half Size.

Sample pair sent to any hardware or saddlery firm by addressing

The Frost Thill Spring Co.,

Boston, Mass.

THE WILCOX & HOWE COMPANY,

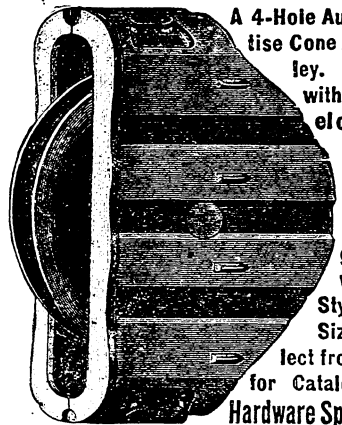
BIRMINGHAM, CONN.,

MANUFACTURERS OF

A Full Line of Carriage Hardware ALSO SPECIAL FORGINGS.

Estimates cheerfully given. Send for Catalogue

IDEAL SASH PULLEY.



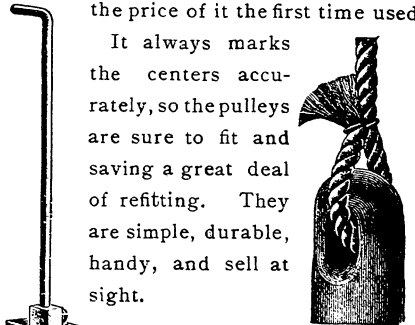
A 4-Hole Auger Mortise Cone Axle Pulley. Applied without chisel or Screws Each Pulley its own marking gauge. A variety of Styles and Sizes to Select from. Ask for Catalogue of Hardware Specialties

STOVER MFG. CO. 145 River St., Freeport, Ill.

Grennan's Sash Pulley Marker for Common Sense Sash Pulleys.

Will mark in ten minutes what would take five hours to do the old way, saving the price of it the first time used.

It always marks the centers accurately, so the pulleys are sure to fit and saving a great deal of refitting. They are simple, durable, handy, and sell at sight.

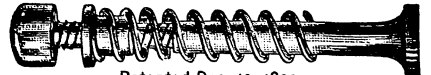


Throop's Sash-Weight Fastener

Saves 2 cents a window in cost of material, saves time in putting on and makes a neater job than tying knots. Send for circulars and prices

J. W. Skelly & Son, - BRISTOL, CT.

Motley's Adjustable Sash Holder

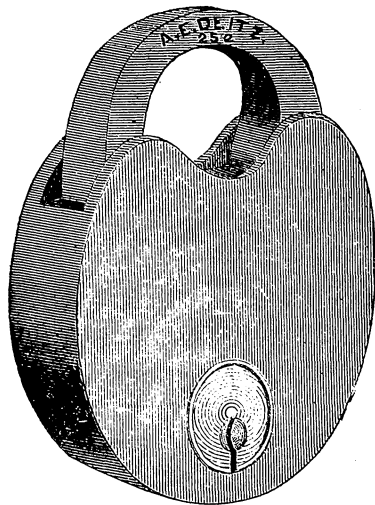


Patented Dec. 13, 1892.

For Windows, New or Old, In Buildings, Cars, Steamboats, Carriages, etc. Also for Window Screens and Sliding Blinds. Send for Descriptive Circular.

P. MOTLEY, 750 S. Broad St., Philadelphia, Pa.

A. E. DEITZ



J. C. McCARTY & CO., Agents,
97 Chambers and 81 Reade Sts., New York.

Factory, BROOKLYN, E. D., N. Y.

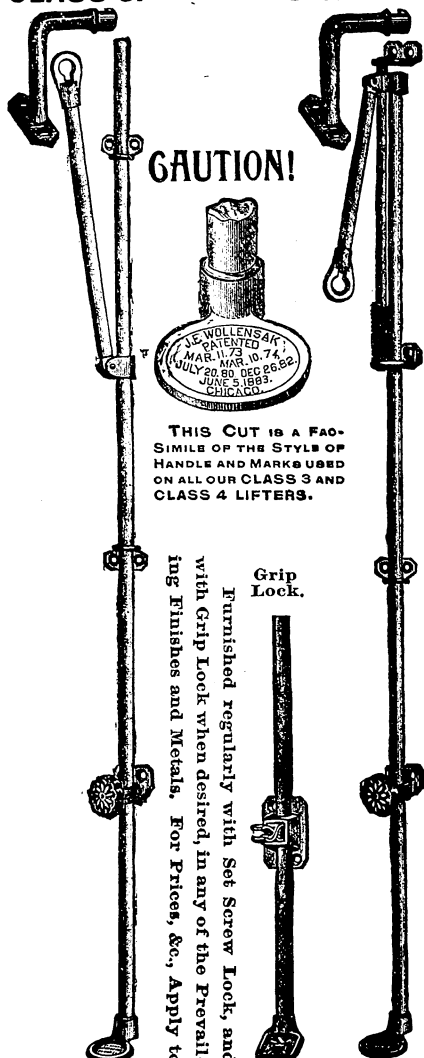
Transom...Lifters

OLD RELIABLE

J. F. WOLLENSAK'S PATENT.

CLASS 3.

CLASS 4.



CAUTION!

THIS CUT IS A FAC-SIMILE OF THE STYLE OF HANDLE AND MARKS USED ON ALL OUR CLASS 3 AND CLASS 4 LIFTERS.

Grip Lock.
Furnished regularly with Set Screw Lock, and with Grip Lock when desired, in any of the Prevailing Finishes and Metals. For Prices, &c., Apply to

J. F. WOLLENSAK, CHICAGO, ILL.

SASH WEIGHTS

E. E. BROWN & CO.,

McKean and Meadow Sts.,

PHILADELPHIA PA.

WHY USE WOODEN OR HEAVY STEEL BLOCKS

WHEN THE STEEL AND IRON

TACKLE BLOCKS

—MADE BY—

The Cleveland Block Co.

CLEVELAND, OHIO, U. S. A.,

ARE BETTER IN EVERY WAY.

No waste material. Every ounce of weight in the line of strength. No clumsy outside straps or bolts. As light as wooden blocks and vastly more durable. They wear, but never break. Sheaves interchangeable

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The H. Channon Co., 22 Market Street, Chicago.
New England Agents, - Dodge, Haley & Co., 212 High Street, Boston.

STEEL. WOOD OR IRON

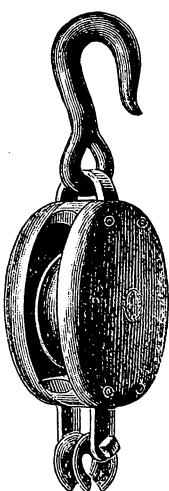
MADE BY

TOLEDO BLOCK WORKS.

511-513-515 Water St., TOLEDO, OHIO,

WILL PROVE SATISFACTORY

TO USER.



SHUBERT & COTTINGHAM,

MANUFACTURERS OF

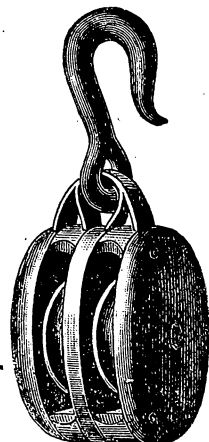


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118 North Delaware Avenue,
Factory, Beach and Norris Sts., PHILADELPHIA.

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BRITTAN & BOND,

154 Lake St., Chicago, Ill.



J.F. WOLLENSAK CHICAGO, ILL.

ELECTRICAL SUPPLIES

SEND FOR ILLUSTRATED PRICE LIST

J.F. WOLLENSAK CHICAGO, ILL.

KEYS OF ALL KINDS

SEND FOR ILLUSTRATED CATALOGUE

NONPAREIL

Ratchet Wrenches.

Made of best forged Tool Steel; are easily and readily adjusted and controlled. Can be made reversible instantly without removing from their work by throwing over the lever in slot of the handle.

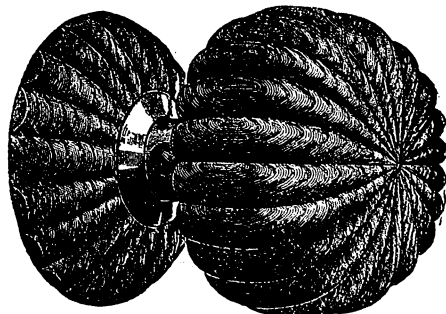
The Set of Combination Tools No. 1 includes the wrench, two sockets, one for screw-driver, bit or reamer shank, with wood handle, and one socket



for drill shank and feed nut. The jaws on this wrench open from 3-16 to 1 1/4 inches.

Send for Illustrated Circular and Price-list of various sizes

The Keystone Mfg. Co.,
312 Terrace, Buffalo, N. Y.



**WOOD DOOR KNOBS,
DOOR SPRINGS AND CHECKS
AND CHECKING SPRING HINGES.**

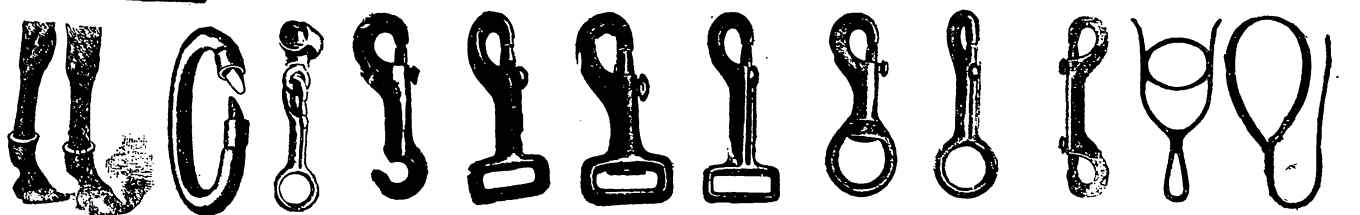
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Send for New Price-List.

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—THIS IS THE—
Great Covert Snap



—KNOWN AS—

Covert's "New" Snap.

The Best and Cheapest, First-Class Snap in the Market.



COVERT'S CELEBRATED HARNESS SNAPS, CHAIN GOODS, ROPE AND WEB GOODS ARE SOLD BY ALL LEADING JOBBERS AT MANUFACTURERS' PRICES.

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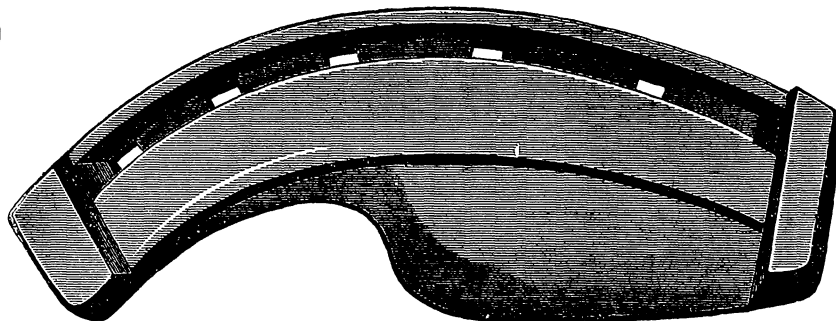
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CARRIAGE HARDWARE AND SPECIAL DROP FORGINGS.

FORGED

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SHOES.



Made under Deebie's Patent, Aug. 9, 1887.

Our 1891 pattern is a modification of the style we have made for the past four years, giving additional strength to the web.

IT IS JUST RIGHT.

BURDEN'S HORSE SHOES.

"Burden Best"

Iron
Boiler Rivets.

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Standard Horse Shoe Co.,

Manufacturers of

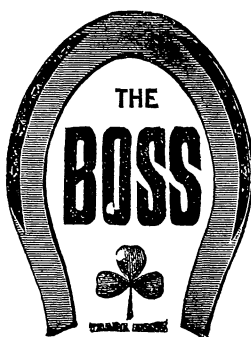
HORSE AND MULE SHOES.

LEEDS, ROBINSON & CO., General Agents,

75 North Street, Boston, Mass.

Crescent
Horse and Mule Shoes,
BAR IRON.

CRESCENT HORSE SHOE AND
IRON CO.,
Max Meadows, Va.



HORSE AND MULE SHOES.

Superior Quality, Shape and Finish.

BRYDEN HORSE SHOE CO.,
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RHODE ISLAND PERKINS HORSE SHOE CO.,
MANUFACTURERS OF

Horse and Mule Shoes of the Perkins Pattern.

SPECIALTIES:—X L Steel Shoes, Toe Weight Shoes and Goodenough Shoes.
Works at Valley Falls, R. I. Office, 31 Exchange Place, Providence, R. I.

F. W. CARPENTER, Pres., C. H. PERKINS, Gen. Manager, R. W. COMSTOCK, Sec'y,
CHARLES R. STARK, Treas.

J. C. McCARTY & CO., Agents - 97 Chambers Street, New York.

THE NEW DIAMOND STATE HORSE AND MULE SHOES.

JUST TRY THEM and YOU will say they excel all others.

MANUFACTURED BY

DIAMOND STATE IRON CO.
WILMINGTON, DELAWARE.

Other "high grade" specialties in Rivets, Spikes, Splice Bars, Track and Machine Bolts, Blank
Nuts, Stay Bolt Iron, Horse Shoe Iron, Bar Iron, &c.

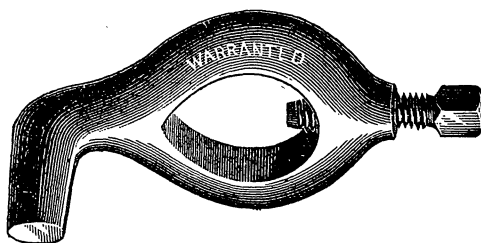
PHILADELPHIA OFFICE,
206 So. Fourth St.

{Correspondence invited}

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LE COUNT'S HEAVY STEEL DOG,

With Steel Screws. U. S. Standard and the points hardened.



1.....	3/8	\$0 40	13.....	2 1/4	\$1 35
2.....	1/2	50	14.....	2 3/4	1 45
3.....	5/8	60	15.....	3	1 60
4.....	3/4	60	16.....	3 1/2	1 80
5.....	7/8	70	17.....	4	2 10
6.....	1	70	18.....	4 1/2	2 75
7.....	1 1/8	80	19.....	5	3 25
8.....	1 1/4	80	Full set of 19, \$23.60.		
9.....	1 1/2	95	20(extra)	5 1/2	4 00
10.....	1 3/4	95	21	6	5 00
11.....	1 3/4	1 10	22	" 7	6 00
12.....	2	1 20	23	" 8	7 00
One small set of 8, by 1/4 in. to 2 in. 6 25					
One set of 12, by 1/4 in. to 2 in., con- tinued by 1/2 in. to 4 in. 13 20					

When ordering, state as above, whether a full set, or a set of 12, or small set of 8, is wanted.

SEND FOR CATALOGUE OF FULL LINE OF MACHINISTS' TOOLS.

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These goods are for sale by CHAS. CHURCHILL & CO., Ltd., 21 Cross St., London, England.

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MANUFACTURERS OF THE BEST QUALITY

CARRIAGE MAKERS' HARDWARE,

MANUFACTURE THE LARGEST VARIETY OF

FORGED CARRIAGE IRONS

Of Best Material and Workmanship.

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Manufactured by the NATIONAL HORSE NAIL CO.,
VERGENNES, VERMONT.

All Sizes. All Patterns. All Warranted. Sold Everywhere.

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Elegant Iron.

Beautiful Shape.

HORSE SHOES,
Light, Medium and Heavy.
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Illustrated booklet and prices to all parts of the world on application.

OLD DOMINION IRON AND NAIL WORKS CO.,

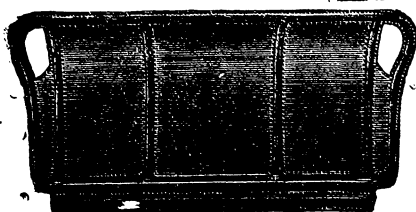
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Chicago Office, 45 La Salle St.

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McKINNON DASH & HDW. CO.,

LIMITED, Manufacturers of



FINE QUALITY
DASHES

AND

FENDERS,

SURREY DASH.

BUFFALO. - N. Y.

P. F. BURKE, C. F. DEWICK & CO.
Successor to
Manufacturer of
PATENT STEEL
(Blunt and Sharp)
TOE-CALKS.
—ALSO—
BURKE'S IMPROVED
HORSESHOERS'
FOOT VICE.
Send for Circulars.
360 Dorchester Av. Die for Welding
BOSTON, MASS. Sharp Calks.

PHOENIX HORSE SHOES.

PHOENIX HORSE SHOE CO.,

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NEW YORK OFFICE. No. 66 Reade St.

AXLEINE

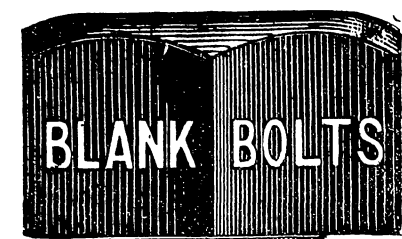


is a fine quality of Axle Grease put up in square tin boxes containing one pound; beautifully decorated in assorted colors; designed especially for the Hardware Trade. Showy and attractive shelf goods.

Send for sample and prices.

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COTTON AND WOOLEN MILLS AND MACHINERY MANUFACTURERS.

AMERICAN-BOLT-CO.
MANUFACTURERS
LOWELL MASS

BOLTS OF ALL KINDS FOR RAILROADS, BRIDGE BUILDERS.

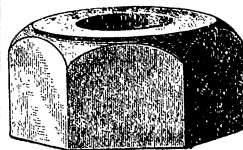


WASHERS OF ALL KINDS.

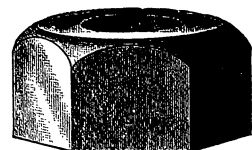
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PORT CHESTER. N. Y.

MANUFACTURERS OF

Cold Punched, Chamfered and Trimmed, Case-Hardened
and Semi-Finished

NUTS.

NUTS FOR RAILROADS, CAR BUILDERS', LOCOMOTIVE BUILDERS' AND MACHINISTS'
USE A SPECIALTY.

CORRESPONDENCE SOLICITED.

ESTABLISHED 1865.

J. H. Sternbergh & Son,

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MANUFACTURERS OF

BOLTS, NUTS, WASHERS, RIVETS,

Including Machine Bolts, Carriage Bolts, Bridge Bolts and Car Bolts,
THE HARVEY PATENT GRIP-THREAD TRACK BOLT, Soft Steel Bolts with Cold Rolled
Thread, Bolt Ends, Turnbuckles, Sleeve Nuts, Lag Screws, Set Screws and Tap Bolts and every variety of
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Washers, Belt Lacing Machines, Rods and Irons for Bridges and Buildings, Merchant Bar Iron, etc., etc.
Branch Establishment, THE KANSAS CITY BOLT & NUT CO., Kansas City, Mo.

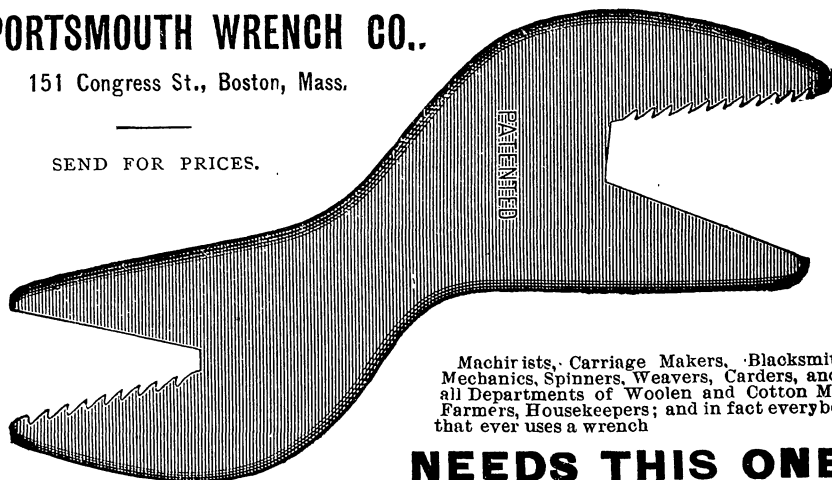
"Always Ready" Wrench.

FORGED STEEL, NICKEL PLATED.

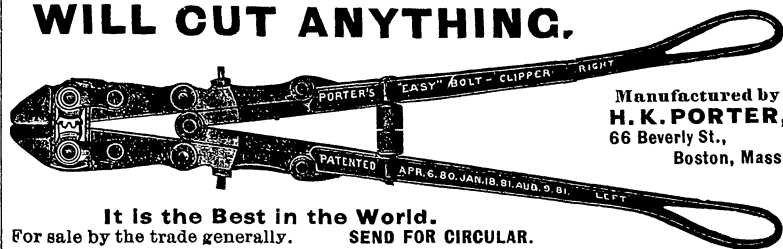
PORTSMOUTH WRENCH CO..

151 Congress St., Boston, Mass.

SEND FOR PRICES.

Machinists, Carriage Makers, Blacksmiths,
Mechanics, Spinners, Weavers, Carders, and in
all Departments of Woolen and Cotton Mills,
Farmers, Housekeepers; and in fact everybody
that ever uses a wrench

NEEDS THIS ONE.

THE "EASY" BOLT CLIPPER.
WILL CUT ANYTHING.Manufactured by
H. K. PORTER,
66 Beverly St.,
Boston, Mass.It is the Best in the World.
For sale by the trade generally. SEND FOR CIRCULAR.

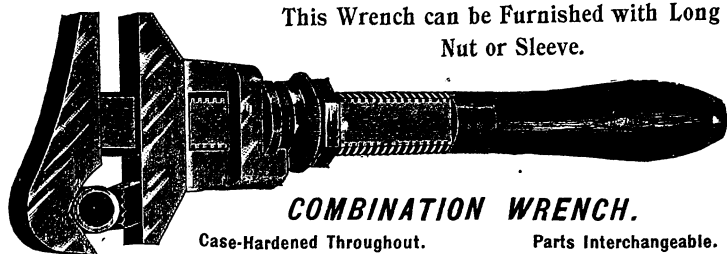
23,000 Sold.

Manufacture To Order

SPECIALTIES & NOVELTIES, PATENTED ARTICLES,
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SEND FOR CATALOGUE - CORRESPONDENCE SOLICITED

OTTO KONIGSLOW CLEVELAND, O.

BUFFALO SCALE CO., Buffalo, N. Y. SCALES OF ALL KINDS.



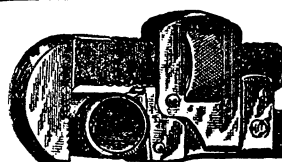
This Wrench can be Furnished with Long Nut or Sleeve.

COMBINATION WRENCH.

Case-Hardened Throughout. Parts Interchangeable.

This wrench not only combines the superior qualities of a Gas Pipe Wrench but also all the requisite combinations of a regular Nut Wrench, thus making a combination which has no equal. For Circulars and Price-List, address

BEMIS & CALL HARDWARE & TOOL CO., Springfield, Mass., U. S. A.



TRIMMO PIPE WRENCH,

Forged Steel.

All parts Interchangeable.

Grips firmly without loss of motion. Releases readily. Never locks. Causes no trouble in close quarters. Does not crush the pipe.

TRIMMO CHAIN PIPE WRENCH.



Superior in strength and ease of operation. COMPLETE circular grip. Never slips nor crushes.

Can be used with one hand and in closer quarters than any other Basin Wrench. Parts interchangeable.

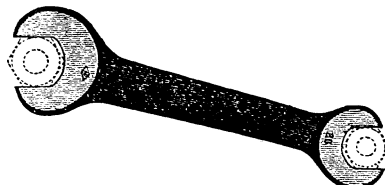
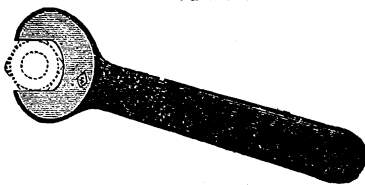


TRIMMO BASIN WRENCH.

TRIMONT MFG. CO., ROXBURY MASS.

SINGLE AND DOUBLE HEAD WRENCHES.

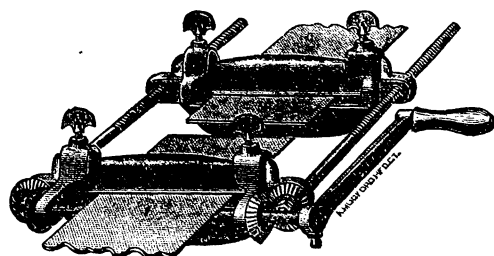
Furnished Finished or Unfinished. Drop Forged from Steel.



The finished wrenches are milled to fit U. S. Standard finished Nuts and are polished and case-hardened. In stock for all sizes bolts from $\frac{1}{8}$ inch to $2\frac{1}{4}$ inches inclusive.

J. H. WILLIAMS & CO., 9-15 RICHARDS ST., BROOKLYN, N. Y.
Iron, Steel, Copper and Bronze Drop-Forgings.

PATENT BELT CLAMPS.



EIGHT SIZES,
FROM

8 TO 36 INCHES.

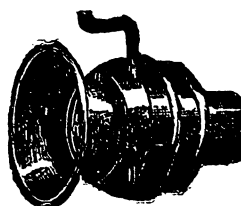
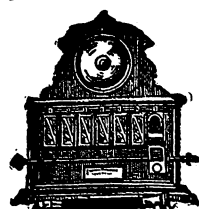
THE BILLINGS & SPENCER CO., HARTFORD, CONN.
London House: Chas. Churchill & Co., 21 Cross St., Finsbury.

W. R. OSTRANDER & CO.,

204 FULTON STREET, NEW YORK,
Manufacturers of

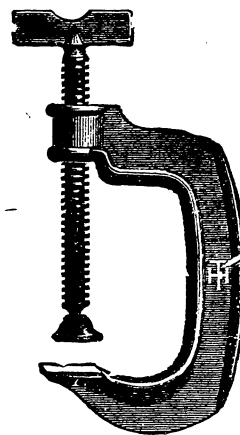
SPEAKING TUBES, WHISTLES, ORAL, ELECTRIC
MECHANICAL AND PNEUMATIC ANNUNCIATORS
AND BELLS.

Complete outfits of Speaking Tubes, Whistles
Electric, Mechanical and Pneumatic Bells. A full line
always in stock. Send for new catalogue. Factory,
DeKalb ave. near Knickerbocker, Brooklyn, N. Y.



Patented Articles of MALLEABLE IRON.

NEW pattern Heavy Screw Clamps.
Strongest in the market.



HAMMER'S MALLEABLE IRON OILERS, 3 Sizes.

HAMMER'S MALL. IRON HAND LAMPS.

HAMMER'S M. I. HANGING LAMPS.

HAMMER'S ADJUSTABLE CLAMPS.

For sale by all the principal Hardware Dealers.
Send for Price List.

MALLEABLE IRON CASTINGS
of superior quality, and Hardware Specialties in
Malleable Iron made to order.

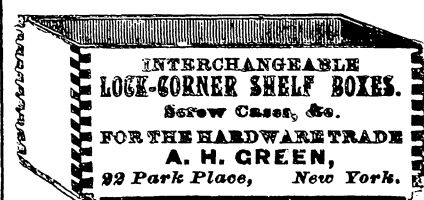
HAMMER & CO., Branford, Conn.

HOWARD IRON WORKS
BUFFALO, N. Y.

Manufacturers of

BENCH VISES.

Price Lists sent on application.



BERGER'S PATENT TRUCKS.

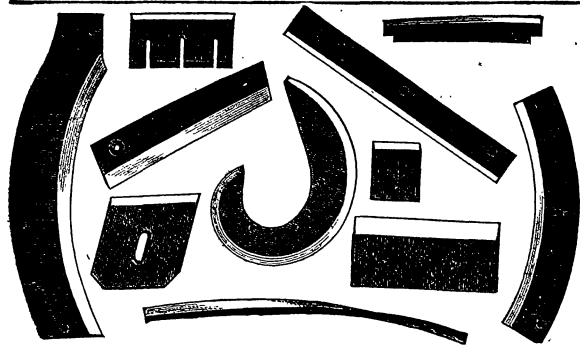
The Handiest, Cheapest and
best in existence.

Highest testimonials from those in
use. Wholesale agents wanted in every
city. Correspondence from Truck Man-
ufacturers solicited. Circulars, price-
lists and full particulars furnished.

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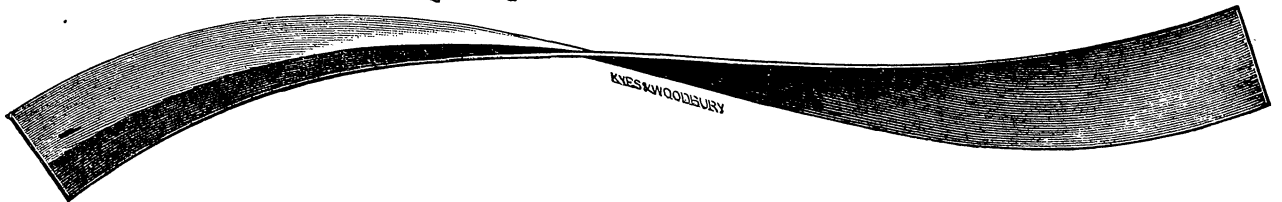
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WORCESTER, MASS.

Manufacturers of MACHINE KNIVES.

Shear Blades and Strips, Moulding Cutter Plate, Die Stock for Leather, Cloth and Paper Cutting Dies. Lawn Mower and Hay Cutter Knives of every description.

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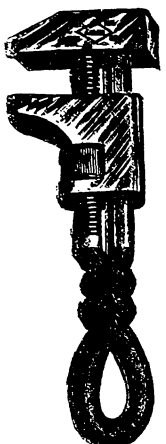
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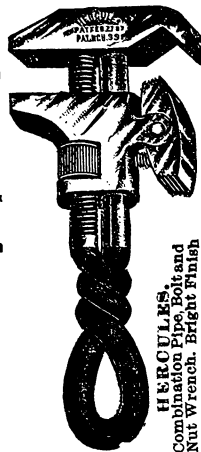
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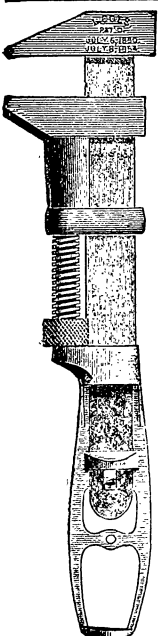
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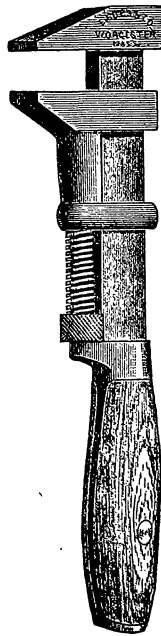
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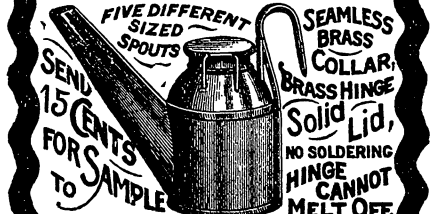
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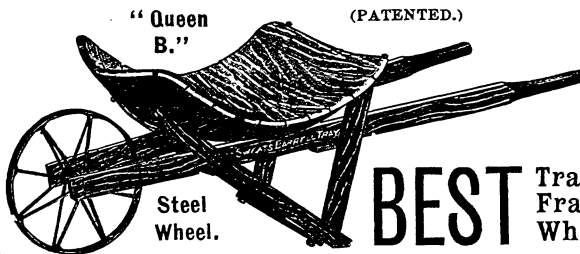
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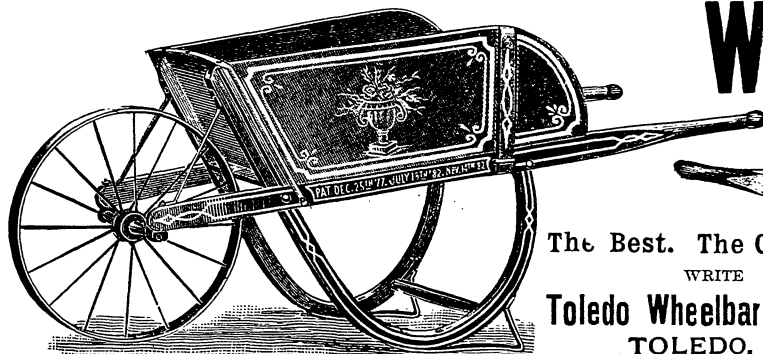
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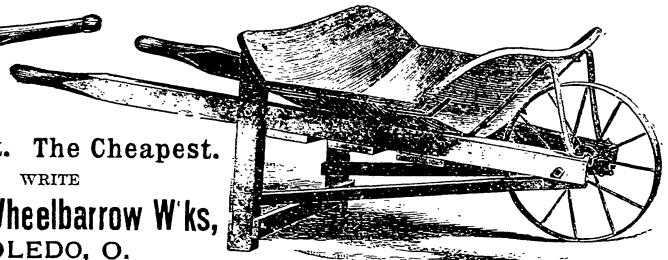
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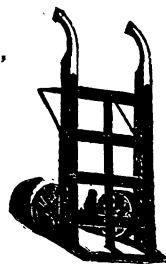
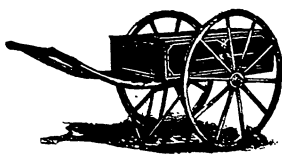
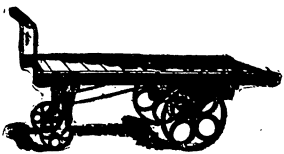


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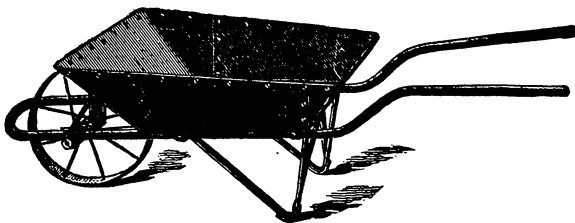
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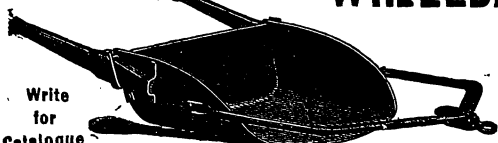
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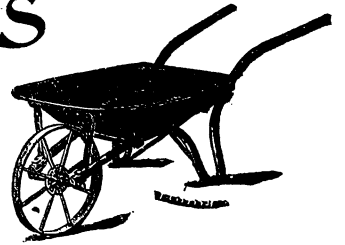
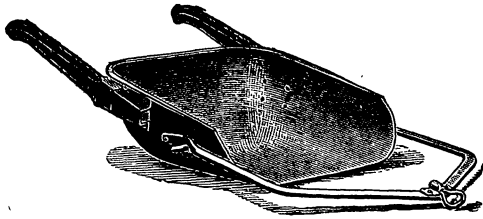
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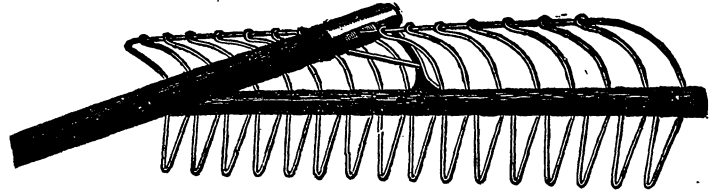


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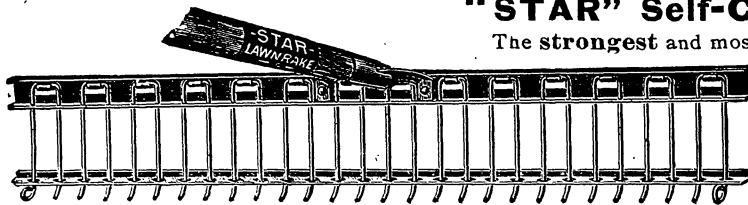
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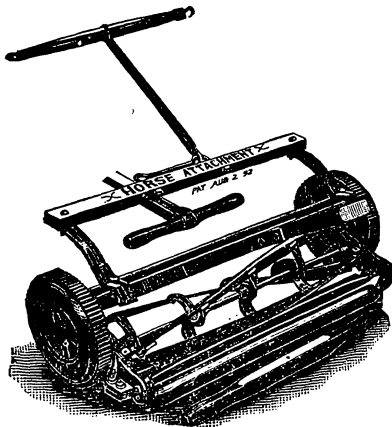
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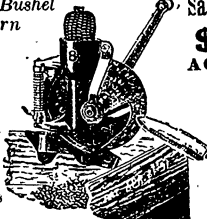
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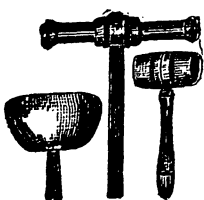
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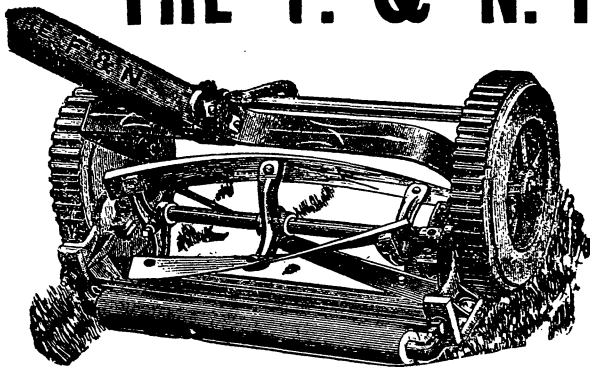
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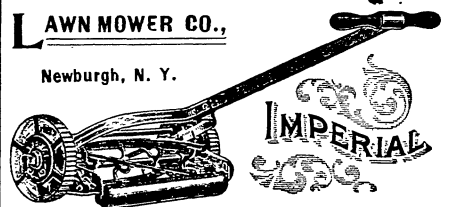
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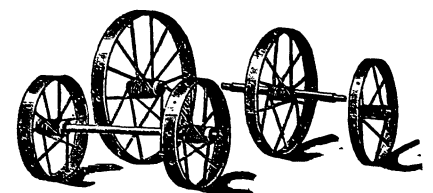
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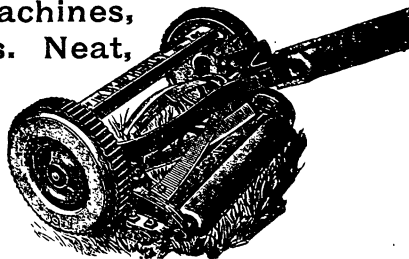
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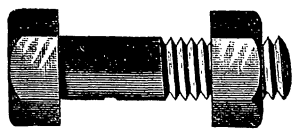
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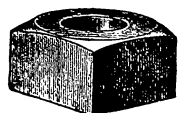
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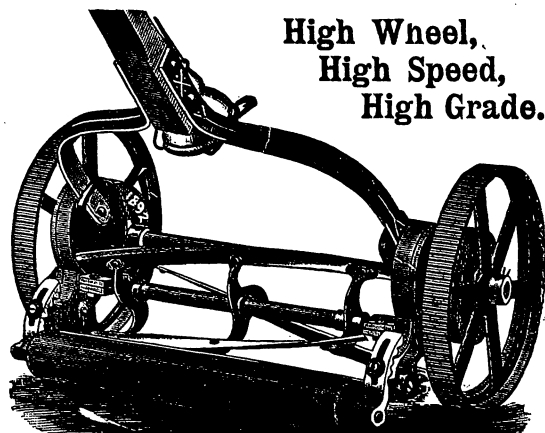
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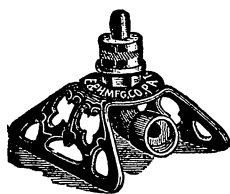
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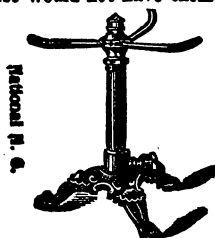
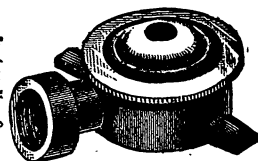


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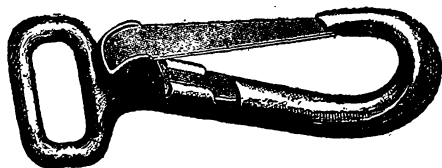
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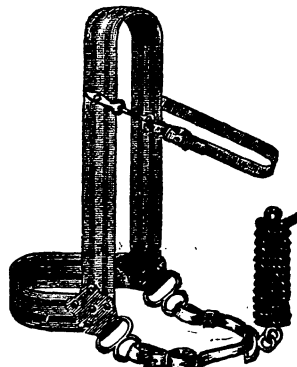
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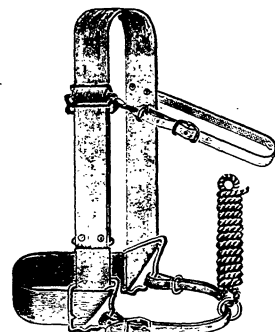
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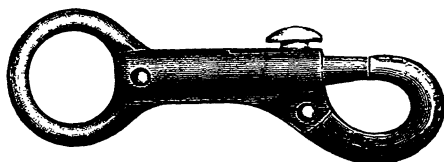
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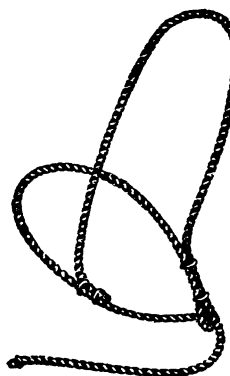
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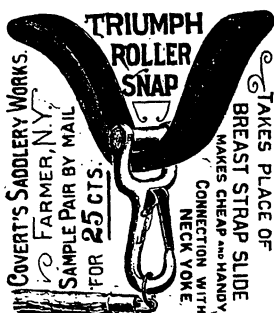
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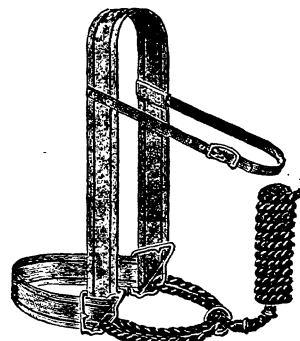
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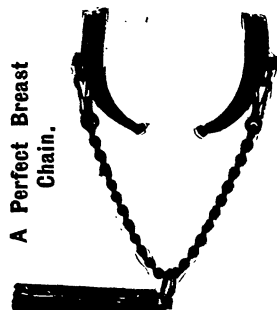
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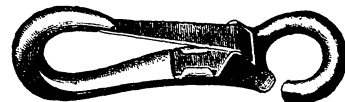
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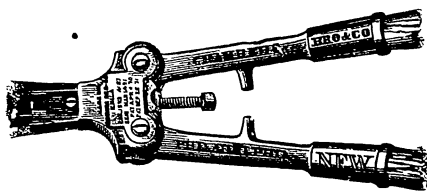
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Yale & Towne Mfg. Co., Stamford, Conn.
- Hardware Mfrs. Agents.**
Bingham, W. Co., Cleveland, O.
Graham, John H. & Co., 113 Chambers, Huxsey E. J. & Co., 80 John St., N. Y.
McCoy, Jos. E. Co., 26 Warren St., N. Y.
Sweet & Lyon, 35 Barclay, N. Y.
Underhill, Clinch & Co., 94 Chambers St., N. Y.
- Hardware Specialties.**
Aome Shear Co., Bridgeport, Conn.
Belden Machine Co., New Haven, Conn.
Clark Mfg. Co., Buffalo, N. Y.
Empire Portable Forge Co., Lansingburg, N. Y.
Enterprises Mfg. Co., Philadelphia, Pa.
Ester & Henger Mfg. Co., St. Louis, Mo.
Gwinner Mfg. Co., Hamilton, O.
Haines & Zimmerman, Phila., Pa.
Hart, E. C. Mfg. Co., Detroit, Mich.
Henn, A. S. & Co., New Haven, Conn.
Knapp & Cowles Mfg. Co., Bridgeport, Conn.
- Lang Mfg. Co., Racine, Wis.**
North Bros. Mfg. Co., Philadelphia, Pa.
Peabody & Parks, Troy, N. Y.
Welland, Chas., 133 Chambers St., N. Y.
Wilson, J. Fred, Worcester, Mass.
Wire Goods Co., Worcester, Mass.
Underhill, Clinch & Co., 94 Chambers Street, N. Y.
- Hardware, Yacht and Ship.**
Ferdinand, L. W. & Co., Boston, Mass.
- Harness Snaps.**
Covert Mfg. Co., West Troy, N. Y.
Covers & Saddlery Wks., Farmer, N. Y.
Fitch, W. & E. T., New Haven, Conn.
- Hay Knives.**
Holt, Hiram, Co., E. Wilton, Me.
- Holding Machines.**
Box, Alf, 324 Green, Phila.
Jew & Holding & Conveying Mch. Co., Cleveland, Ohio.
Fulton Iron & Engine Wks., Detroit, Mich.
- Harrington, E. Son & Co., Phila.**
Lane Bros., Poughkeepsie, N. Y.
Lidgerwood Mfg. Co., 96 Liberty, N. Y.
Reedley, Philadelphia.
- Moore Mfg. & Fdy. Co., Milwaukee, Wis.**
Morse, Williams & Co., Phila.
Sellers, Wm. & Co., Phila. and N. Y.
Spindel, J. G., Reading, Pa.
- Yale & Towne Mfg. Co., Stamford, Ct.**
- Holloware, Aluminum.**
Illinois Pure Aluminum Co., Lemont, Ill.
- Horse and Barbers' Clippers.**
Hutchins, E. S., Bridgeport, Conn.
- Horse Nails. Makers of.**
National Horse Nail Co., Vergennes, Vt.
- Horse Shoes. Makers of.**
Borden Horse Shoe Co., Catsanqua, Pa.
Burden Iron Co., Troy, N. Y.
Crescent Horse Shoe & Iron Co., Max Meadows, Va.
Diamond State Iron Co., Wilmington, Del.
Dominion Iron & Nail Works Co., Richmond, Va.
Phoenix Horse Shoe Co., Poughkeepsie, N. Y.
Rhode Island Perkins Horse Shoe Co., Providence.
Standard Horse Shoe Co., Boston, Mass.
- Hose.**
Cleveland Rubber Co., Cleveland, O.
N. Y. Belting & Packing Co., Ltd., 15 Park Row, N. Y.
- Hose Menders.**
Hudson, C. E. & Co., Leominster, Mass.
- Hotels.**
The Audubon, Chicago, Ill.
- Hydrants, &c.**
McLean, John, 296 & 298 Monroe, N. Y.
- Hydraulic Jacks.**
Dudgeon, Richard, 24 Columbia, N. Y.
Watson & Stillman, 204 E. 43d, N. Y.
- Ice-Cream Freezers.**
North Bros. Mfg. Co., Phila., Pa.
Parker, C. W., Philadelphia, Pa.
White Mountain Freezer Co., Nashua, N. H.
- Ice Shavers.**
Enterprise Mfg. Co., Philadelphia, Pa.
- Injectors.**
Jenkins Bros., New York.
Sherwood Mfg. Co., Buffalo, N. Y.
- Insurance, Boiler.**
Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Iron and Steel, Swedish.**
Lundberg, Gustaf, Boston, Mass.
Milne, A. & Co., 1 Broadway, N. Y.
- Iron Commission Brokers.**
Corning, Edw. & Co., 30 B'way, N. Y.
Cotton, Bradley & Co., Philadelphia.
Etting, Edw. J., Philadelphia.
Hogan, John L. & Co., Philadelphia, Pa.
Hoffman, J. W. & Co., Philadelphia.
Levis, Henry & Co., Philadelphia.
Kosley, Jerome & Co., Philadelphia.
Lee, J. Tammal & Co., Philadelphia.
Mohr, J. J., 480 Walnut, Philadelphia.
Mann, E. R. & Co., Philadelphia.
Pilling & Crane, Philadelphia, Pa.
Sibell, Geo. H. & Co., Chicago, Ill.
Wilhelm & Co., Harrisburg, Pa.
Wister, L. & R. Co., Phila., Pa.
- Iron Ore.**
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pullman, J. Wesley, Phila., Pa.
Samuel, Frank, Philadelphia, Pa.
- Iron Merchants.**
Barnes, O. K. & Co., Philadelphia, Pa.
Borden & Lovell, 70 West, N. Y.
Busenius & Cunliffe, Philadelphia.
Corning, Edw. & Co., 29 B'way, N. Y.
Cox, Justice, Jr., Philadelphia.
Cotton, Bradley & Co., Philadelphia.
Hoffman, J. W. & Co., Philadelphia.
Leonard, J., 446 West St., N. Y.
Naylor & Co., 45 Wall St., N. Y.
Nicolls, Wheeler & Co., Philadelphia.
Ogden & Wallace, 85 Elm St., N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pierson & Co., 30 Broadway, N. Y.
Richards, D. W. & Co., 88 Mangin St., N. Y.
Wallace, Wm. H. & Co., Albany & Washington streets, N. Y.
Whitney, A. R. & Co., 17 B'way, N. Y.
Wilson, E. H. & Co., Philadelphia.
- Iron, Importers.**
Abbott, Vere & Co., N. Y. and Boston.
Lundberg, Gustaf, Boston, Mass.
- Iron, Sheet. Manufacturers of.**
Cambridge Iron & Steel Co., Cambridge, Ohio.
W. Dewees Wood Co., Ltd., McKeesport, Pa.
- Ironwork, Ornamental.**
Barnum, E. T., Detroit, Mich.
Champion Iron Co., Kenton, O.
Lange Fence & Wire Co., St. Louis, Mo.
Ludlow-Saylor Wire Co., St. Louis, Mo.
Mast, Roos & Co., Springfield, O.
The Van Dorn Iron Works Co., Cleveland, O.
- Keys.**
Wollensak, J. F., Chicago, Ill.
- Kraut Cutters.**
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
- Ladders.**
Davies, Chas. & Co., Williamsport, Pa.
- Ladies.**
Detroit Fdy. Equipment Co., Detroit, Mich.
- Lamp Stoves.**
Glazier Stove Co., Chelsea, Mich.
- Lamps.**
Standard Lighting Co., Cleveland, O.
- Lanterns.**
Dietz, R. E. Co., 60 Tiaht St., N. Y.
Ohio Lantern Co., Tiffin, Ohio.
Steam Gauge & Lantern Co., Syracuse, N. Y.
- Lathes.**
Bradford Mill Co., Cincinnati, Ohio.
Draper Machine Tool Co., Worcester, Mass.
Johnson, Israel H., Jr., & Co., Philadelphia, Pa.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Lathing, Wire.**
Clinton Wire Cloth Co., Clinton, Mass.
N. J. Wire Cloth Co., Trenton, N. J.
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Laundry Machines.**
The Lang Mfg. Co., Racine, Wis.
- Lawn Mowers.**
Chadborn & Coldwell Mfg. Co., Newburgh, N. Y.
Champion Mfg. Co., Richmond, Ind.
Coldwell Lawn Mower Co., Newburgh, N. Y.
F. & N. Mfg. Co., Richmond, Ind.
Henley, M. C., Richmond, Ind.
Lape, W. E., Syracuse, N. Y.
Mast, Roos & Co., Springfield, O.
Searns, E. C. & Co., Syracuse, N. Y.
Supple Hdw. Co., Phila., Pa.
- Lawn Rakes.**
Schaeffer & Co., Dayton, Ohio.
Syracuse Specialty Mfg. Co., Syracuse, N. Y.
- Lawn Sprinklers.**
Ette & Henger Mfg. Co., St. Louis.
McGowan, John H. Co., Cincinnati, O.
- Lawn Sweepers.**
Lape, W. E., Syracuse, N. Y.
- Lawn Swings.**
Davies, Chas. & Co., Williamsport, Pa.
- Lemon Squeezers.**
Ripley Mfg. Co., Unionville, Conn.
- Letters, Paper.**
Tablet & Ticket Co., Chicago, Ill.
- Levels.**
Davis & Cook, Watertown, N. Y.
Richardson, C. F., & Son Athol, Mass.
- Locks & Knobs. Manufacturers of.**
Dietz, A. E., 97 Chambers, N. Y.
Keyless Lock Co., Chicago, Ill.
Reading Hdw. Co., Reading, Pa.
Romer & Co., Newark, N. J.
Satin & Edge Mfg. Co., Bridgeport, Conn.
Yale & Towne Mfg. Co., Stamford, Conn.
- Lubricators.**
Wadham's Oil & Grease Co., Milwaukee, Wis.

- Machinery.**
Am. Tool Works, Cleveland, Ohio.
Barnes, W. F. & John, Rockford, Ill.
Becker, Jno. Mfg. Co., Fitchburg, Mass.
Bement, Miles & Co., Philadelphia, Pa.
Bigelow, C. E., 45 Dey, N. Y.
Bignall & Keeler Mfg. Co., St. Louis.
Birmingham Iron Foundry, Birmingham, Conn.
Bliss, E. W. Co., Brooklyn, N. Y.
Bogert, Jno. & Plush, N. Y.
Bradford Mill Co., Cincinnati, Ohio.
Briggs, Marvin, 12 Broadway, N. Y.
Brown & Sharpe Mfg. Co., Providence, R. I.
Carlin's Sons, Thos., Allegheny, Pa.
Cinn. Milling Mch. Co., Cincinnati, Ohio.
Clapp, Geo. M., agt., 74 Cortlandt, N. Y.
Coulter & McKensie Mch. Co., Bridgeport, Conn.
Crulshank, D. B., Providence, R. I.
Detroit & Harvey Mch. Co., Baltimore, Md.
Ehrhardt, Gustave & Sons, Pittsburgh, Pa.
Fitchburg Mch. Works, Fitchburg, Mass.
Garvin Mch. Co., Laight & Canal Sts.
Gould & Eberhardt, Newark, N. J.
Hamilton Mch. Tool Co., Hamilton, O.
Harrington, E. Son & Co., Phila. Pa.
Hendey Machine Co., Torrington, Ct.
Hendley Mch. Tool Works, Richmond, Ind.
Hill, Clarke, Boston, Mass.
Ingersoll Milling Machine Co., Rockford, Ill.
Johnson, Israel H., Jr., & Co., Phila.
Jones & Lamson Mch. Co., Springfield, Mass.
Kelly, Daniel, Phila., Pa.
Lodge & Davis Mch. Tool Co., Cincinnati, O.
Lodge & Shipley Mch. Tool Works, Cincinnati, O.
Lovegrove & Co., Philadelphia, Pa.
McCabe, J. J., 68 Cortlandt, N. Y.
Mechanists Supply Co., Rochester, N. Y.
Manville, E. J. Mch. Co., Waterbury, Conn.
Morton Mfg. Co., Muskegon Heights, Mich.
National Machinery Co., Tiffin, Ohio.
Newark Mch. Tool Works, New ark, N. J.
New Haven Mfg. Co., New Haven, Conn.
New York Mach. Works, N. Y.
Niles Tool Wks., 138 Liberty St., N. Y.
Pedrick & Ayer, Philadelphia, Pa.
Pittsburgh Mfg. Co., Pittsburgh, Pa.
Place, Geo., 120 Broadway, N. Y.
Poole, Robt. & Son Co., Baltimore, Md.
Powell Planer Co., Worcester, Mass.
Pratt & Whitney Co., Hartford, Conn.
Prestis Tool Supply Co., N. Y.
Scranton Supply & Mch. Co., Scranton, Pa.
Sellers, Wm. & Co., Phila.
Seyfert's Sons L. F., Philadelphia, Pa.
Steptoe, J. & Co., Cincinnati, O.
Stow Flexible Shaft Co., Ltd., Phila.
Toomey, Frank, Phila., Pa.
Wetherill, Robert & Co., Chester, Pa.
Wilson, W. A., Rochester, N. Y.
Woodruff Mfg. Co., Hartford, Conn.
- Machinery for Hardware Manufacture.**
Adt, Jno. & Son, New Haven, Conn.
- Machine Knives.**
Corning Co. & Co., Worcester, Mass.
Loyd, John, 558-562 Water St., N. Y.
- Machine Tools.**—See machinery.
- Machine Work.**
Fapping, J., 58th St., & 11th Ave., N. Y. City.
- Machinists' Supplies.**
Coffin & Leighton, Syracuse, N. Y.
Starrett L. S., Athol, Mass.
- Machinists' Tools and Supplies.**
Brown & Sharpe Mfg. Co., Providence, R. I.
King, J. M. & Co., Waterford, N. Y.
Sellers, Wm. & Co., Inc., Phila.
- Mallets.**
N. Y. Mallet & Handle Works, N. Y.
- Mangles.**
The Lang Mfg. Co., Racine, Wis.
- Manufacturing Sites.**
Kokomo Enterprise Co., Kokomo, Ind.
- Measuring Tapes.**
Lufkin Rule Co., Saginaw, Mich.
- Meat Cutters.**
Enterprise Mfg. Co., Philadelphia, Pa.
- Mechanical Drawing.**
Correspondence School of Mechanics, Scranton, Pa.
- Metals.**
Fearing, Wm. S., 100 Chambers, N. Y.
Hendricks Bros., 49 Cliff, N. Y.
Naylor & Co., 45 Wall, N. Y.
- Metal Brokers.**
American Metal Co., N. Y.
- Metalurgists.**
Britton, J. Blodgett, Phila.
- Metal Saws.**
Ehrhardt, Gustave & Sons, Pittsburgh, Pa.
G & C Co., Chicago, Ill.
- Milling Machines.**
Brown & Sharpe, Providence, R. I.
Cinn. Milling Mch. Co., Cincinnati, Ohio.
Ingersoll Milling Machine Co., Rockford, Ill.
Pedrick & Ayer, Phila. Pa.
- Mining Knives.**
Palmer Hdw. Mfg. Co., Troy, N. Y.
- Mine Lamps.**
Darby, Edw. & Sons, Phila. Pa.
Leonard, T. E., Scranton, Pa.
Leonard, T. B., Scranton, Pa.
- Mining Screens.**
Harrington & King Perforating Co., Chicago, Ill.
Howard & Morse, 45 Fulton, N. Y.
- Minnow Traps.**
Wilson, Ed. C., Olney, Ill.
- Mirrors.**
Rice, C. E., Chicago, Ill.
- Mitre Bees.**
Olmsted, L. H., Hasbrouck Heights, N. J.
- Model Work.**
Am. Vending Mch. Co., 29 Murray, N. Y.
- Molding Sand.**
Chicago Foundry Supply Co., Chicago, Ill.
Obermayer, S. Co., Cincinnati, O.
Paxson, J. W. & Co., Phila.
- Motors, Water and Electric.**
C. & O. Electric Motor Co., 402 and 404 Greenwich St., N. Y.
Diller, Thos. H. & Co., Phila., Pa.
Thomson, Houston Motor Co., Boston, Mass.
- Nail Machinery.**
Pittsburgh Mfg. Co., Pittsburgh, Pa.
- Nails (Cut) and Spikes.**
Borden & Lowell, 70 West, N. Y.
Cumberland Nail & Iron Co., Phila.
Oxford Iron Co., 81 Washington, W.
Pottstown Iron Co., Pottstown, Pa.
Riverside Iron Wks., Wheeling, W. Va.
- Nickel Platers' Supplies.**
Eddy Electric Mfg. Co., Windsor, Conn.
Hanson & Van Winkle Co., Newark, N. J.
Zucker & Levett Chemical Company, 10 to 14 Grand St., N. Y.
- Norway Shapes, Rollers of.**
Bowland, William & Harvey, Frankford, Philadelphia
- Nut Machines.**
Dunham Nut Mch. Co., Unionville, Ct.
- Nuts, Bolts, &c., Makers of.**
American Bolt Co., Lowell, Mass.
American Screw Co., Providence, R. I.
Blake Johnson, Waterbury, Conn.
Baskell, Wm. H. Co., Pawtucket, R. I.
Mt. Carmel Bolt Co., Mt. Carmel, Conn.
Fort Chester Bolt and Nut Co., Fort Chester, N. Y.
Russell, Burdall & Ward, Port Chester, N. Y.
Sternbergh, J. H. & Son, Reading, Pa.
Wilson, Fred, Worcester, Mass.
Wm. H. Haskell Co., Pawtucket, R. I.
- Oil Cans and Lubricators.**
Sherwood Mfg. Co., Buffalo, N. Y.
- Oil Stones.**
Pike Mfg. Co., Pike Station, N. H.
- Oil Stoves.**
Glazier Stove Co., Chelsea, Mich.
- Orange Shears.**
Henry, J. T., Mfg. Co., Hamden, Conn.
- Ores.**
Wister, Francis, Philadelphia, Pa.
- Presses.**
Scranton Forging Co., Scranton, Pa.
- Packing.**
Billington, Jas. H. & Co., Phila., Pa.
Morrison, Robt., St. Louis, Mo.
N. Y. Belting & Packing Co. Ltd., N. Y.
- Packings.**
Ames Sword Co., Chicopee, Mass.
Fram, E. T., Lancaster, Pa.
Hillebrand & Wolf, Phila., Pa.
Miller Lock Co., Philadelphia, Pa.
- Paint.**
Detroit Graphite Mfg. Co., Detroit, Mich.
Dixon, Jos. Crucible Co., Jersey City, N. J.
Garry Iron & Steel Roofing Co., Cleveland, O.
- Paint Burners.**
Dangler Stove & Mfg. Co., Cleveland, O.
- Patent Sellers.**
Higginald, S. C., Washington, D. C.
Hosson & Howson, Phila. & Washgton.
Jenner, H. W. T., Washington, D. C.
Locking, E. B., Washington, D. C.
Peanut and Coffee Re-sister.
Olson, A. B., Kansas City, Mo.
- Perforated Metal.**
Clinton Wire Cloth Co., Clinton, Mass.
Harrington & King Perforating Co., Chicago, Ill.
- Phosphor Bronze.**
Phosphor Bronze Smelting Co., Limited, 612 Arch, Philadelphia.
- Phosphor Tin.**
Crescent Phosphorized Metal Co., Philadelphia, Pa.
- Crosby Steam Gauge & Valve Co., Boston, Mass.**
Halk & Naumann, 516 Pearl, N. Y.
- Picks and Mattocks.**
Plumb, Fayette K., Philadelphia, Pa.
- Pig Iron.**
C. B. & Co., Philadelphia, Pa.
Hann, Edwin R., Philadelphia, Pa.
Montour Iron & Steel Co., Danville, Pa.
Naylor & Co., 45 Wall, N. Y.
Pickands, Brown & Co., Chicago, Ill.
Pilling & Crane, Philadelphia, Pa.
Samuel, Frank, Philadelphia, Pa.
- Pig Iron Storage.**
Adt Pig Iron Storage Warrant Co., 44 Wall, N. Y.
- Pile Drivers.**
Vulcan Iron Wks., Chicago, Ill.
- Pipe, Bent.**
National Pipe Bending Co., New Haven, Conn.
- Pipe Cutting and Threading Machines.**
Bignall & Keeler Mfg. Co., St. Louis, Mo.
Merrill Mfg. Co., Toledo, O.
Pancoast & Maule, Philadelphia, Pa.
Saunders' Sons, D., Yonkers, N. Y.
- Pipe Grips.**
Fretz Vise Co., 44 Barclay, N. Y.
- Pipes, Fittings, &c., Makers of.**
McNab & Hardin Mfg. Co., N. Y.
- Pipe, Water and Gas, Makers of.**
Cumberland Nail & Iron Co., Phila. Pa.
Donaldson Iron Co., Emaus, Pa.
Riverside Iron Works, Wheeling, W. Va.
Wood, R. D. & Co., Philadelphia, Pa.
- Piston Rods, Manufacturers of.**
Buck Bros., Milbury, Mass.
- Planes, Manufacturers of.**
Stanley Rule & Level Co., N. Y.
- Plate Bending Rolls.**
Schneekloth, H. A., 630 W. 28th St., N. Y.
- Plate, Iron and Steel, Mfrs of.**
Emaus Standard Iron & Steel Co., Bridgeport, Ct.
Hankens Iron & Steel Co., Coatesville, Pa.
Mahoning Valley Iron Co., Youngstown, Ohio.
Moorehead-McLean Co., Pittsburgh, Pa.
Mollvahn & Sons, Reading, Pa.
Pittstown Iron Co., Pottstown, Pa.
Pottsville Iron & Steel Co., Pottsville, Pa.
- Singer, Nimick & Co., Pittsburgh, Pa.**
The Mahoning Valley Iron Co., Youngstown, O.
Wellman Iron & Steel Co., Thurlow, Pa.
Wood Alan Co., Philadelphia.
- Plating, Nickel, Brass and Iron.**
Wilnot & Hobbs Mfg. Co., Bridgeport, Conn.
- Plumbago.**
Chicago Fdy. Supply Co., Chicago, Ill.
- Pokers and Lifters.**
Troy Nickel Works, Troy, N. Y.
- Polishing Machines.**
Watson & Stillman, 204 E. 43d, N. Y.
- Polishing Wheel.**
La Massena, C. E. & Co., Newark, N. J.
- Post Hole Diggers.**
Buckeye Mfg. Co., Union City, Ind.
Kohler, F. E. & Co., Canton, O.
Wister, L. & R. Co., Philadelphia, Pa.
- Penalty Nettings.**
Barnum, E. T., Detroit, Mich.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
"Silver Finish."
Tyler Wire Wks Co., W. S., Cleveland, O.
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Powder.**
Lafin & Rand Powder Co., 29 Murray, New York Powder Co., 62 Liberty St., N. Y.
- Power Hack Saws.**
Millers Falls Co., 93 Reade St., N. Y.
Stover Novelty Wks., Freeport, Ill.
- Power Hammers.**
Bradley & Co., Syracuse, N. Y.
Belden Mach. Co., New Haven, Conn.
Oiselt & Eisenhardt, Philadelphia, Pa.
Dupont Mfg. Co., St. Johnsbury, Vt.
Jenkins & Lingie, Bellefonte, Pa.
- Presses, Dies, &c.**
E. W. Bliss Co., Brooklyn, N. Y.
Crosby, G. & Co., Chicago, Ill.
Ferracute Mch. Co., Bridgeport, N. J.
Stark Mch. & Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Brooklyn, N. Y.
Waterbury Mch. Co., Waterbury, Conn.
- Presses, Power, Makers of.**
Bliss, E. W. Co., Brooklyn, N. Y.
Eaton, Geo. H. & Co., Boston, Mass.
Manville, E. J. Mch. Co., Waterbury, Ct.
Merriman, A. H., Meriden, Conn.
Stark Mch. & Tool Co., Buffalo, N. Y.
Waterbury Farrel Foundry and Machine Co., Waterbury, Conn.
- Pulley Fixings.**
Foley, J. W. & Co., Cincinnati, O.
- Pulleys.**
Great Western Pin Co., Toledo, O.
Keystone Clutch, Mch. Wks., Phila., Pa.
Reeves Pulley Co., Columbus, Ind.
- Pulverizing Mill.**
Bradley Fertilizer Co., Boston, Mass.
- Pumping Machinery.**
Coulter & McKensie Mch. Co., Bridgeport, Conn.
Dean Bros. Steam Pump Works, Inc., 612 Arch, Seneca Falls, N. Y.
diapallo, Inc., Seneca Falls, N. Y.
Hooker-Colville Steam Pump Co., Chicago, Ill.
Lucas, C. O. & Co., Greenville, Ohio.
Jecowson, J. H. & Co., Cincinnati, O.
Maslin, J. & Son, Jersey City, N. J.
Norwalk Iron Wks. Co., So. Norwalk, Conn.
Southwark Fdy. & Mch. Co., Phila., Pa.
Valley Pump Wks. Easthampton, Mass.
Worthington, Henry R., 86 & 88 Liberty St., N. Y.
- Pumps, Makers of.**
Deming Co., Salem, O.
Douglas, W. & B., Middletown, Conn.
East, Foss & Co., Springfield, O.
Myers, F. E. & Bro., Ashland, O.
St. Joseph Pump Co., St. Joseph, Mo.
- Punches and Shears, Hand and Power.**
Bertsch & Co., Cambridge City, Ind.
E. W. Bliss Co., Brooklyn, N. Y.
Cleveland Hdw. Co., Cleveland, O.
Cockburn Barrow & Mch. Co., Jersey City, N. J.
Crosby, G. A. & Co., Chicago, Ill.
Eaton, Geo. H. & Co., Boston, Mass.
Ferracute Mch. Co., Bridgeport, N. J.
New Dory Mfg. Co., Janesville, Wis.
Robinson, J. M. & Co., Cincinnati, O.
Sohnneekloth, H. A., 530 W. 28th St., N. Y.
Stark Mch. & Tool Co., Buffalo, N. Y.
Stiles & Parker Press Co., Brooklyn, N. Y.
Vais & Roos, Punch & Shear Co., Cincinnati, Ohio.
Waterbury Farrel Foundry and Mch. Co., Waterbury, Conn.
Watson & Stillman, 204 E. 43d, N. Y.
- Rails, Old and New.**
Hirsch, L. K., Chicago, Ill.
Perry, W. H. & Co., Providence, R. I.
Schwarzenberg Bros. & Co., Cleveland O.
- Rat and Mouse Traps.**
Burditt & Williams, Boston, Mass.
Estey, W. S., 65 Fulton, N. Y.
Ridley Mfg. Co., Unionville, Conn.
Sun Mfg. Co., Greenfield, O.
- Razors.**
Butcher, W. S., 135 Duane St., N. Y.
Curley, J. & Bro., 6 Warren St., N. Y.
Electric Cutlery Co., 113 Chambers, N. Y.
Schmitz, E. Lothar, 92 Reade St., N. Y.
J. R. Torrey Razor Co., Worcester, Mass.
- Refrigerator Door Fasteners.**
Conroy, P. J. & Co., Philadelphia.
- Rivets.**
Blake & Johnson, Waterbury, Conn.
Burden Iron Co., Troy, N. Y.
Cobb & Drew, Plymouth, Mass.
Farrington, Jas. S., 185 Greenwich, N. Y.
Plymouth Mills, Plymouth, Mass.
Sternbergh, J. H. & Son, Reading, Pa.
Townsend, W. P. & Co., New Brighton, Pa.
- Riveting Machines.**
Adt, Jno. & Sons, New Haven, Conn.
- Roasters and Bakers.**
Matthai, Ingram & Co., Baltimore, Md.
- Rock Drills.**
Penna. Diamond Drill & Mfg. Co., Birdsboro, Pa.
Rand Drill Co., 23 Park Place, N. Y.
- Rolling Mill Machinery.**
Birmingham Iron Fdry, Birmingham, Conn.
Booth, The Lloyd Co., Youngstown, O.
Leeburg Foundry & Mch. Co., Pittsburgh, Pa.
Mahoning Fdry & Mch. Co., Danville, Pa.
Morgan Construction Co., Worcester, Mass.
Robinson-Rea Mfg. Co., Pittsburgh, Pa.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
Trethewey Mfg. Co., Pittsburgh, Pa.
Waterbury Farrel Foundry & Mch. Co., Waterbury, Conn.
- Roll Lathes.**
Totten & Hogg Iron & Steel Fdry Co., Pittsburgh, Pa.
- Rolls, Chilled, Sand and Steel.**
Booth, The Lloyd Co., Youngstown, O.
Garrison, A. Fdry Co., Pittsburgh, Pa.
Johnson Foundry Co., Johnstown, Pa.
Seaman, Sleeth & Black, Pittsburgh, Pa.
Totten & Hogg Iron and Steel Fdry Co., Pittsburgh, Pa.
- Roofing.**
Berlin Iron Bridge Co., E. Berlin, Conn.
Boston Bridge Works, Boston, Mass.
Cambridge Roofing Co., Cambridge, O.
Cincinnati Corrugating Co., Piqua, O.
Johns, H. W. Mfg. Co., 87 Maiden Lane.
- Rope and Web Goods.**
Cover Mfg. Co., West Troy, N. Y.
Cover's Saddlery Wks., Farmer, N. Y.
- Rope Wheels.**
Cresson, Geo. V. Co., Philadelphia, Pa.
- Rubber Goods.**
Canfield, H. O., Bridgeport, Conn.
- Rules, Manufacturers of.**
Lufkin Rule Co., Saginaw, Mich.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers.
- Sad Iron Holders.**
Kesner, J. L., & Co., Chicago, Ill.
- Sad Irons.**
Universal Sad Iron Co., Milwaukee, Wis.
- Sand Paper.**
Baeder, Adamson & Co., Phila., Pa.
- Sash Balances.**
Caldwell Mfg. Co., Rochester, N. Y.
Fulman Sash Balance Co., Rochester, N. Y.
Stewart & Baker, Rochester, N. Y.
Vanderbilt Sash Balance Co., Canandaigua, N. Y.
- Sash Cords and Chains.**
Morton, Thos., 65 Elizabeth, N. Y.
Ossawa Mills Co., Norwich, Conn.
Samson Cordage Works, Boston, Mass.
Smith & Egge, Mfg. Co., Bridgeport.
- Sash Holders.**
Motley, Peter, Philadelphia, Pa.
- Sash Locks.**
Ives, H. B. & Co., New Haven, Conn.
- Sash Pullers.**
Empire Portable Forge Co., Lansingburgh, N. Y.
- Sash Pulley Marker.**
Skelly, J. W. & Son, Bristol, Conn.
- Sash Weights.**
Brown, E. E. & Co., Philadelphia, Pa.
- Sash Weight Fasteners.**
Skelly, J. W. & Son, Bristol, Conn.
- Saw Handles.**
Gwinner Mfg. Co., Hamilton, O.
- Saws, Makers of.**
Atkins, E. C. & Co., Indianapolis, Ind.
Dixson, Henry & Sons, Phila., Pa.
Hiles, C. A. & Co., 333-335 Carroll Ave., Chicago, Ill.
National Saw Co., 96 Reade St., N. Y.
Simonds Mfg. Co., Fitchburg, Mass.
- Saw Sets.**
Kohler, F. E. & Co., Canton, Ohio.
Taintor Mfg. Co., 84-86 Chambers, N. Y.
- Scales, Manufacturers of.**
Buffalo Scale Co., Buffalo, N. Y.
Chadillon, John & Sons, 85-89 Cliff, N. Y.
- Scrapers, Road.**
Am. Steel Scraper Co., Sidney, Ohio.
Kilbourne & Jacobs Mfg. Co., Columbus, O.
Sidney Steel Scraper Co., Sidney, O.
- Screens, Door and Window.**
Queen Anne Screen Co., Burlington Vt.
- Screw Cutting Machinery.**
Wells Bros. & Co., Greenfield, Mass.
Willey & Russell Mfg. Co., Greenfield, Mass.
- Screw Drivers.**
Brown, R. H. & Co., New Haven, Conn.
Capitol Mfg. Co., Chicago, Ill.
Chantrell Tool Co., Reading, Pa.
Gay & Parsons, Augusta, Me.
Mayhew, H. H. Co., Shelburne Falls, Mass.
- Screw Plate and Pipe Cutter.**
Jarecki Mfg. Co., Erie, Pa.
- Screws, Makers of.**
American Screw Co., Providence, R. I.
Blake & Johnson, Waterbury, Conn.
Wm. H. Haskell Co., Pawtucket, Mass.
Miles, J. S., 206 Quarry, Philadelphia.
National Screw & Tap Co., Cleveland, Ohio.
Reynolds & Co., New Haven, Conn.
Russell & Erwin Mfg. Co., New York.
Worcester Machine Screw Co., Worcester, Mass.
- Screw Nuts.**
Barnes, W. F. & John, Rockford, Ill.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Seythe Stones and Whetstones.**
Pike Mfg. Co., Pike Sta'n, N. H.
Cleveland Stone Co., Cleveland, O.
Huron Grindstone Co., Fort Austin, Mich.
- Shattering, Makers of.**
Cresson, Geo. V., Co., Philadelphia, Pa.
Fairmount Mch. Co., Philadelphia, Pa.
Fitzsimons & Co., Cleveland, Ohio.
Sellers, Wm. & Co., Inc., Phila. Pa.
Stow Mfg. Co., Birmingham, N. Y.
- Shaped Iron and Steel, Manufacturers of.**
Emaus Standard Iron & Steel Co., Bridgeport, O.

- Allentown Rolling Mill.** Allentown, Pa.
Illinois Steel Co., Chicago, Ill.
Lockhart Iron & Steel Co., Pittsburg, Pa.
Passaic Rolling Mill Co., Paterson, N.J.
Pottsville Iron & Steel Co., Pottsville, Pa.
Roberts, A. & P. & Co., Phila., Pa.
The Phoenix Iron Co., Phila., Pa.
Tudor Iron Works, St. Louis, Mo.
- Shears and Scissors.**
Aame Shear Co., Bridgeport, Conn.
Reinischs, R. Sons Co., Newark, N. J.
- Sheet Iron and Steel, Manufacturers of.**
Kina-Standard Iron and Steel Co., Bridgeport, C.
Cambridge Iron & Steel Co., Cambridge, Ohio.
Chess Bros., Pittsburgh, Pa.
Mahoning Valley Iron Co., Livingston, Ohio.
Moorehead-McCleane Co., Pittsburgh, Pa.
Peterson & Co., 29 Broadway, N. Y.
Reddy, John W., Fort Hunter P. O., Pa.
Singer, Nimick & Co., Ltd., Pittsburgh, Pa.
The Mahoning Valley Iron Co., Youngstown, O.
Alan Wood Co., Philadelphia.
W. Dewees Wood Co., McKeesport, Pa.
- Sheet Metal Work.**
Clark & Cowles, Plainville, Conn.
- Sheet Zinc.**
Mathiessen & Hegeler Zinc Co., La Salle, Ill.
- Shelf Brackets.**
Koch, A. B. & Co., Peoria, Ill.
- Shipping Blanks.**
Barlow Bros., Grand Rapids, Mich.
- Shovels, Spades and Scoops.**
Myers, H. M. Co., Beaver Falls, Pa.
- Shutter Workers.**
Tyson & Zimmerman, Frederick, Md.
- Slabs.**
Douglas, W. & B., Middletown, Conn.
- Skates, Ice.**
Dame, Stoddard & Kendall, Boston, Mass.
Winslow, Sam'l, Skate Mfg. Co., Worcester, Mass.
- Skates, Roller.**
Henley, M. O., Richmond, Ind.
Union Hardware Co., Torrington, Conn.
Winslow, Sam'l, Skate Mfg. Co., Worcester, Mass.
- Smelting Works.**
Reeves, Paul S., 760 S. Broad, Phila.
- Speaking Tubes.**
Ostrander, W. R. & Co., 204 Fulton St., N. Y.
Wollensak, J. F., Chicago, Ill.
- Specialties, Pat. Articles.**
Konigsrow, O., Cleveland, O.
- Speed Indicators.**
Church & Slight, 109 Fulton St., N. Y.
- Spelter.**
Mathiessen & Hegeler Zinc Co., La Salle, Ill.
- Spoons and Forks.**
Holmes & Edwards Silver Co., Bridgeport, Conn.
Rogers, The Wm. Mfg. Co., Hartford, Conn.
- Sporting Goods.**
Hartley & Graham, 313-315 B'way, N. Y.
- Spring.**
American Spiral Spring Co., Pittsburg, Pa.
Cary, Alanson, 240-242 W. 29th St., N. Y.
Dunbar Bros., Bristol, Conn.
Miller & Van Winkle, Brooklyn, N. Y.
Morgan Spring Co., Worcester, Mass.
Nourse, Fred Co., 315 to 319 E. 22d St., N. Y.
Sabin Machine Co., Montpelier, Vt.
Washburn & Moen Mfg. Co., Worcester, Mass.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
- Spring Hinges.**
Bardsley, J., 149 & 151 Baxter St., N. Y.
Chicago Spring Butt Co., Chicago, Ill.
Pullman Sash Balance Co., Rochester, N. Y.
Sover Mfg. Co., Freeport, Ill.
Van Wagoner & Williams Co., 14 Warren St., N. Y.
- Spring Keys and Cutters.**
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
- Sprinklers.**
Smith, Oliver A., Clarkston, Mich.
- Stamped Ware.**
Am. Stamping Co., 104 & 106 John St., New York.
- Stamping Works.**
Avery Stamping Co., Cleveland, O.
Cleveland Stamping & Tool Co., Cleveland, O.
- Staples.**
Cobb & Drew, Plymouth, Mass.
Titchener E. H. & Co., Binghamton, N. Y.
- Steam Gauges.**
Ashcroft Mfg. Co., 111 Liberty St., N. Y.
Bristols Mfg. Co., Waterbury, Conn.
- Steam Hammers, &c., Makers of**
Dienelt & Eisenhardt, Philadelphia.
Dudgdon, Richard, 24 Columbia Street, N. Y.
Trethewey Mfg. Co., Pittsburgh, Pa.
- Steam Heating.**
Webster Warren & Co., Phila., Pa.
- Steam Separators.**
Goubert Mfg. Co., 32 Cortland St., N. Y.
Harrison Safety Boiler Wks., Phila. Pa.
- Steel Balls.**
Grant Anti-Friction Ball Co., Fitchburg, Mass.
- Steel, Cold Rolled Strip.**
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
- Steel Figures and Alphabets.**
Krogerud, W., 61 Fulton, N. Y.
- Steel Importers.**
Abbott, Jere & Co., N. Y. and Boston.
Hobson, Francis, Seaman & Co., 91 John St., N. Y.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Milne, A. & Co., 1 Broadway, N. Y.
Newton & Shipman, 88 John, N. Y.
Wetherell Bros., 93 Liberty St., N. Y.
Whitney, A. B. & Co., B'way, N. Y.
Wolf, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
- Steel (Mushet's Special).**
Jones, E. M. & Co., Boston.
- Steel Manufacturers.**
Kina-Standard Iron & Steel Co., Bridgeport, C.
Bethlehem Iron Co., S. Bethlehem, Pa.
Baker, Herman & Co., 103 Duane St. Carbon Steel Co., Pittsburgh, Pa.
Chester Steel Castings Co., Phila., Pa.
Chrome Steel Works, Brooklyn, N. Y.
Crescent Steel Co., Pittsburgh, Pa.
Elken & Co., Hagen, Germany.
Frankford Steel Co., Philadelphia.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Hobson, Francis, Seaman & Co., 91 John St., N. Y.
Illinois Steel Co., Chicago, Ill.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Kayser, Ellison & Co., Sheffield, Eng.
La Belle Steel Co., Pittsburgh, Pa.
Lukens Iron & Steel Co., Coatesville, Pa.
Moorehead-McCleane Co., Pittsburgh, Pa.
Moss, F. W., 43 John, N. Y.
Naylor & Co., 45 Wall, N. Y.
Pennsylvania Steel Co., Steelton, Pa.
Pottsville Iron and Steel Co., Pottsville, Pa.
Reddy, J. W., Fort Hunter P. O., Pa.
Rowland, Wm. & Harvey, Frankford, Philadelphia.
Singer, Nimick & Co., Pittsburgh.
Stanley Works, New Britain, Conn.
Steel & Iron Improvement Co., Pittsburgh, Pa.
Taylor Iron & Steel Co., High Bridge, N. J.
Wordlaw, S. & C., Sheffield, Eng.
Wetherell Bros., 93 Liberty, N. Y.
Wilmot & Hobbs Mfg. Co., Bridgeport, Conn.
- Steel, Manufacturers' Agents.**
Barnes, C. K. & Co., Philadelphia, Pa.
Corning, Edw. & Co., 29 B'way, N. Y.
Lindsay, Jas. G. & Co., Phila., Pa.
Peterson & Co., 29 Broadway, N. Y.
- Steel Rails, Manufacturers of.**
Bethlehem Iron Co., S. Bethlehem, Pa.
Cambria Iron Co., Johnstown, Pa.
Illinois Steel Co., Chicago, Ill.
Penna. Steel Co., Steelton, Pa.
Montour Iron & Steel Co., Danville, Pa.
Riverside Iron Wks., Wheeling, W. Va.
- Steel Spiral Springs, Manufacturers.**
Chatillon, John & Sons N. Y.
Roland, Wm. & Harvey, Frankford.
Wolf, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
- Steel, Tool.**
Frankford Steel Co., Philadelphia, Pa.
Jessop, Wm. & Sons, Sheffield, England, or 91 John, N. Y.
Jones, B. M. & Co., Boston, Mass.
La Belle Steel Co., Pittsburgh, Pa.
- Step Ladders.**
Bicycle Step Ladder Co., Chicago, Ill.
Croissant, M., Albany, N. Y.
- Stocks and Dies.**
Armstrong Mfg. Co., Bridgeport, Conn.
Billings & Spencer Co., Hartford, Conn.
Butterfield & Co., Derby Line, Vt.
Hart Mfg. Co., Cleveland, O.
Saunders' Sons, D., Yonkers, N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
- Stove Linings.**
Ostrander Fire Brick Co., Troy, N. Y.
- Stove Pipe Thimbles.**
Cheney, S. & Son, Maunus, N. Y.
- Stove Trimmings.**
Troy Nickel Works, Troy, N. Y.
- Street Lamps.**
Dietz, E. F. Co., 60 Light St., N. Y.
Steam Gauge & Lantern Co., Syracuse, N. Y.
- Strops.**
Electric Cutlery Co., 113 Chambers, N. Y.
J. R. Torrey & Co., Worcester, Mass.
- Stropping Machines.**
Schmitz, E. Lothar, 92 Reade St., N. Y.
- Structural Iron Work.**
Berlin Iron Bridge Co., East Berlin, Conn.
Boston Bridge Wks., Boston, Mass.
Lindsay, Jas. G. & Co., Phila., Pa.
Wrought Iron Bridge Co., Canton, O.
- Sulphuric Acid.**
Mathiessen & Hegeler Zinc Co., La Salle, Ill.
- Tacks, Brads, Staples, &c.**
Atlas Tack Corporation, Boston, Mass.
Cobb & Drew, Plymouth, Mass.
Grand Crossing Tack Co., Grand Crossing, Ill.
Nat. Screw & Tack Co., Cleveland, O.
Phillips, E. & Sons, South Hanover, Plymouth Mills, Plymouth, Mass.
Trafant, W. E., Whitman, Mass.
- Taps and Dies.**
Bedford & Co., Derby Line, Vt.
Carpenter, J. M., Tap & Die Co., Pawtucket, R. I.
Manning, Maxwell & Moore, 111 Liberty, St., N. Y.
Wells Bros. & Co., Greenfield, Mass.
Wiley & Russell Mfg. Co., Greenfield, Mass.
- Testing Laboratories.**
Riehle Bros. Testing Mch. Co., Philadelphia.
- Testing Machines.**
Riehle Bros. Testing Mch. Co., Phila.
- Theatrical Hardware.**
Wollensak, J. F., Chicago, Ill.
- Thill Springs.**
Frost Thill Spring Co., Boston, Mass.
Sabin Machine Co., Montpelier, Vt.
- Time Record.**
Scattergood, H. W., Phila., Pa.
- Timners' Hardware.**
Serger Bros., Philadelphia, Pa.
- Tin Plate Machinery.**
Lloyd Booth Co., Youngtown, Ohio.
- Tinware.**
Am. Stamping Co., 104 & 106 John St., Matthal, Ingram & Co., Baltimore, Md.
- Tire Upsetters.**
Butts & Ordway, Boston, Mass.
Illinois Iron & Bolt Co., Carpentersville, Ill.
- Toe Calks, Steel.**
Burke, F. F., Boston, Mass.
- Tool Chests.**
Am. Tool Co., 200 W. Houston St., N. Y.
- Tools.**
Atkins, E. C. & Co., Indianapolis, Ind.
Britton, Horace E., Stoughton, Mass.
Brown, R. H. & Co., New Haven, Conn.
Cincinnati Tool Co., Reading, Pa.
Cincinnati Tool Co., Cincinnati, O.
Fray, Jno. S. & Co., Bridgeport, Conn.
Mayhew, H. H. Co., Shelburne Falls, Mass.
Miller Falls Co., 98 Reade, N. Y.
Richardson, C. F. & Son, Athol, Mass.
Standard Tool Co., Athol, Mass.
Stanley Rule & Level Co., 29 Chambers, Starrett, L. S., Athol, Mass.
Tower & Lyon, 95 Chambers St., N. Y.
- Tools, Blacksmith and Wheelwrights.**
Buffalo Forge Co., Buffalo, N. Y.
Butts & Ordway, Boston, Mass.
Champion Blower & Forge Co., Lancaster, Pa.
Illinois Iron & Bolt Co., Carpentersville, Ill.
Plumb, Fayette R., Philadelphia, Pa.
Wiley & Russell Mfg. Co., Greenfield, Mass.
- Tools, Steam and Gas Fitters'.**
Saunders' Sons, D., Yonkers, N. Y.
- Torches, Oil and Gasolene.**
Danier Stove & Mfg. Co., Cleveland, O.
Schneider & Trenkamp Co., Cleveland, Ohio.
Standard Lighting Co., Cleveland, O.
- Transom Lifters.**
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Randolph & Clowes, Waterbury, Conn.
- Tire Protectors.**
McCallip Fence & Wire Wks., Columbus, Ohio.
- Trucks, Manufacturers of.**
Berger Bros., Philadelphia, Pa.
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Clark, G. F., Windsor Locks, Conn.
Lansing Wheelbarrow Co., Lansing, Mich.
- Tubes, Seamless Drawn Copper.**
Ansonia Brass & Copper Co., 19 and 21 Cliff, N. Y.
Randolph & Clowes, Waterbury, Conn.
- Tubes, Steel.**
Leng's John S. Son & Co., 4 Fletcher St., New York.
Shelby Steel Tube Co., Shelby, O.
- Tumbling Barrels.**
Henderson Bros., Waterbury, Conn.
- Turnbuckles.**
Central Iron & Steel Co., Brazil, Ind.
Cleveland City Forge & Iron Co., Cleveland, O.
Merrill Bros., Brooklyn, E. D.
- Twine Cutters.**
Wild, A. L., Providence, R. I.
- Twist Drills, Makers of.**
Cleveland Twist Drill Co., Cleveland.
Morse Twist Drill & Machine Co., New Bedford, Mass.
New Process Twist Drill Co., Taunton, Mass.
Standard Tool Co., Cleveland.
- Valves, Gas, Water and Steam.**
Best, Fox & Co., Pittsburgh, Pa.
Chapman Valve Mfg. Co., Boston.
Jenkins Bros., 71 John, N. Y.
McNab & Harlin Mfg. Co., 56 John N. Y.
Mason Regulator Co., Boston, Mass.
- Ventilating Fans.**
Huyett & Smith Mfg. Co., Detroit, Mich.
- Ventilator Appliances.**
Howard & Morse, 45 Fulton, N. Y.
- Vise Jaws.**
Newark Mch. Tool Co., Newark, N. J.
- Vises.**
Hollands Mfg. Co., Erie, Pa.
Howard Iron Works, Buffalo, N. Y.
Millers Fall Co., 93 Reade St., N. Y.
Prentiss Vise Co., 44 Barclay, N. Y.
Tower & Lyon, 95 Chambers St., N. Y.
Van Wagoner & Williams Co., 14 Warren St., N. Y.
- Wagon Jacks.**
Boston & Lockport Block Co., Boston, Mass., and Lockport, N. Y.
Covert Mfg. Co., West Troy, N. Y.
Covert's Saddlery Works, Farmer, N. Y.
- Washers.**
Haskell, Wm. H. Co., Pawtucket, R. I.
Milton Mfg. Co., Milton, Pa.
Sternbergh, J. H. & Son, Reading, Pa.
- Washing Machines.**
Neff, W. H., Cowan, Ind.
Olds Wagon Works, Ft. Wayne, Ind.
Wayne, A. Mfg. Co., Ft. Wayne, Ind.
- Water Meters.**
Worthington, Henry R., 86 & 88 Liberty St., N. Y.
- Water Wheels.**
Poole, Robt. & Son Co., Baltimore, Md.
- Well Boring Machines.**
Oil Well Supply Co., Pittsburgh, Pa.
- Well Machinery.**
Amer. Well Works, Aurora, Ill.
- Wheelbarrows.**
Akron Tool Co., Akron, O.
Amer. Steel Saper Co., Sidney, Ohio.
Cockburn Barrow & Mch. Co., Jersey City, N. J.
Kilbourne & Jacobs Mfg. Co., Columbus, Ohio.
- Lansing Wheelbarrow Co.,** Lansing, Mich.
Sidney Steel Scraper Co., Sidney, O.
Sweet Mfg. Co., Minneapolis, Minn.
Toledo Wheelbarrow Wks., Toledo, O.
- Wheels.**
Arnold Metal Wheel Co., New London, O.
- Whips.**
American Whip Co., Westfield, Mass.
- Window Cord, Makers of.**
Samson Cordage Works, Boston, Mass.
- Wire, Manufacturers of.**
Amer. Spiral Spring Co., Pittsburgh, Pa.
Amer. Wire Nail Co., Anderson, Ind.
Consolidated Steel & Wire Co., St. Louis, Mo.
Gautier Steel Department of Cambria Iron Co., Johnstown, Pa.
Miller & Van Winkle, Brooklyn, N. Y.
New Castle Wire Nail Co., New Castle, Pa.
New Haven Wire Mfg. Co., New Haven, Conn.
Salem Wire Nail Co., Salem, O.
Tronton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester.
Wetherell Bros., 93 Liberty St., F. Y.
Wolf, R. H. & Co., Ltd., 118th St. and Harlem River, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Wire Cloth.**
Barnum, E. T., Detroit, Mich.
Clinton Wire Cloth Co., Clinton, Mass.
Darby, Edward & Sons, Philadelphia.
Estey, W. S., 65 Fulton, N. Y.
Gilbert & Bennett Mfg. Co., 42 Cliff.
Howe & Dore, 45 Fulton, N. Y.
N. J. Wire Cloth Co., Trenton, N. J.
Reliance Wire & Iron Wks., Milwaukee, Wis.
Scheeler & Sons, Buffalo, N. Y.
Wickwire Bros., Cortland, N. Y.
Wright & Colton Wire Cloth Co., Worcester, Mass.
- Wire Cloth Measuring and Cutting Machines.**
Schrivver, O. P. & Co., Cincinnati, O.
- Wire Cutters.**
Cronk Hanger Co., Elmira, N. Y.
Higginson Hdw. Co., Higginson, Conn.
King, J. M. & Co., Watertown, N. Y.
- Wire Dies.**
McFarland, Wm., Trenton, N. J.
Newton & Shipman, 83 John, N. Y.
- Wire Door Mats.**
Hartman Mfg. Co., Beaver Falls, Pa.
The Wire Goods Co., Worcester, Mass.
White Mfg. Co., Minneapolis, Minn.
- Wire Fences.—See Fencing, Iron and Wire.**
- Wire Goods, Manufacturers of.**
Darby, Edward & Sons, Phila.
Gilbert & Bennett Mfg. Co., 42 Cliff St., N. Y.
Lansing Fence & Wire Co., St. Louis, Mo.
Ludlow-Saylor Wire Co., St. Louis.
Ossawaun Mills Co., Norwich, Conn.
Scheeler & Sons, Buffalo, N. Y.
Whitman & Barnes Mfg. Co., Syracuse, N. Y.
- Wire Goods Co.,** Worcester, Mass.
Wickwire Bros., Cortland, N. Y.
Williams, C. T., Wire Novelty Co., Newark, N. J.
- Wire Machinery.**
Am. Tool Wks., Cleveland, O.
Manville, E. J. Mch. Co., Waterbury, Ct.
Morgan Construction Co., Worcester, Mass.
- Wire Straightening and Cutting Machinery.**
Adt, John & Son, New Haven, Conn.
- Wire Nails.**
Amer. Wire Nail Co., Anderson, Ind.
Backus Wire Nail Co., Cleveland, O.
Consolidated Steel & Wire Co., St. Louis, Mo.
Indiana Wire Fence Co., Crawfordsville, Ind.
Kilmer Mfg. Co., Newburg, N. Y.
New Castle Wire Nail Co., New Castle, Pa.
Phillips, E. & Sons, South Hanover, Mass.
Phillips, Townsend & Co., Phila., Pa.
Plymouth Mills, Plymouth, Mass.
Salem Wire Nail Co., Salem, O.
Whitney, A. B. & Co., New York City
- Wire Rods, Steel.**
Amer. Wire Nail Co., Anderson, Ind.
Consolidated Steel & Wire Co., St. Louis, Mo.
Illinois Steel Co., Chicago, Ill.
New Castle Wire Nail Co., New Castle, Pa.
Washburn & Moen Mfg. Co., Worcester, Mass.
Whitney, R. & Co., 17 B'way, N. Y.
Wolf, R. H. & Co., Ltd., 118th Street and Harlem River, N. Y.
- Wire Rope, Iron and Steel Makers.**
Broderick & Bascom Rope Co., St. Louis, Mo.
California Wire Works, San Francisco.
Hasard Mfg. Co., Wilkesbarre, Pa.
A. Leschen & Sons, Rope Co., St. Louis.
Trenton Iron Co., Trenton, N. J.
Washburn & Moen Mfg. Co., Worcester, Mass.
Williamsport Wire Rope Co., Williamsport, Pa.
- Wire Spool.**
Malin & Co., Cleveland, O.
- Woodenware.**
Tucker & Dorsey Mfg. Co., Indianapolis, Ind.
- Wood-Working Machinery.**
Fox, J. A., & Egan Co., Cincinnati, O.
Seneca Falls Mfg. Co., Seneca Falls, N. Y.
- Wrapping Paper.**
Am. Roll Paper Co., St. Louis, Mo.
- Wrenches, Manufacturers of.**
Bemis & Call Hardware & Tool Co., Springfield, Mass.
Billings, Spencer & Co., Hartford, Conn.
Capitol Mfg. Co., Chicago, Ill.
Central Iron & Steel Co., Brazil, Ind.
Coe's Wrench Co., Worcester, Mass.
Gendron Iron Wheel Co., Toledo, O.
Keystone Mfg. Co., Buffalo, N. Y.
Portsmouth Wrench Co., Boston, Mass.
Tower & Lyon, 95 Chambers St., N. Y.
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Am. Stamping Co.	110	Butterfield & Co.	61	Deitz, A. E.	120	Hartford Steam Boiler Insp. and Ins.	38
Am. Steel Scraper Co.	127	Butts & Ordway.	61	DeKalb Fence Co.	9	Hartley & Graham.	1
Am. Tool Co.	107	Byram & Co.	32	Deming Co.	84	Hartman Mfg. Co.	9
Am. Tool Works.	71	C. & C. Electric Motor Co.	37	Detrick & Harvey Machine Co.	65	Hartwell, E. B.	84
Am. Vending Machine Co.	68	Caldwell Mfg. Co.	17	Detroit Cork Screw Co.	108	Haskell, Wm. H. Co.	132
Am. Well Works.	42	California Wire Works.	5	Detroit Dynamo Co.	37	Hazard Mfg. Co.	6
Am. Whip Co.	139	Cambria Iron Co.	23	Detroit Foundry Equipment Co.	34	Heinisch's R. Sons Co.	91
Am. Wire Nail Co.	13	Cambridge Iron & Steel Co.	28	Detroit Graphite Mfg. Co.	32	Henderson Bros.	36
Ames Sword Co.	117	Cambridge Roofing Co.	18	Diamond State Iron Co.	122	Hendey Machine Co.	80
Ansonia Brass & Copper Co.	2	Canfield, H. O.	46	Dienelt & Eisenhardt.	56	Hendricks Bros.	2
Arcade Malleable Iron Co.	28	Canton Saw Co.	86	Dietz, R. E. Co.	108	Henley, M. C.	108&129
Armstrong Mfg. Co.	65	Capitol Mfg. Co.	126	Disston, Henry & Sons.	87	Henley Machine Tool Works.	48
Arnold, F. H.	6	Carbon Steel Co.	24	Dixon, Jos., Crucible Co.	40	Henn, A. S. & Co.	99
Arnold Metal Wheel Co.	129	Carlin's Sons, Thomas.	73	Donaldson Iron Co.	30	Henry, J. T. Mfg. Co.	95
Artificial Gas Engineering Co.	36	Carpenter, J. M. Tap & Die Co.	139	Doscher, Martin.	91	Herbrand Co.	27
Aschman Steel Casting Co.	30	Carroll Muzzle Co.	111	Douglas, W. & B.	84	Herrick, J. A.	35
Ashcroft Mfg. Co.	42	Carten, Henry J.	35	Draper Machine Tool Co.	75	Herrick & Cowell.	66
Atkins, E. C. & Co.	38	Cary, Alanson.	5	Dudgeon, Richard.	57	Hertz, T. & Son.	4
Atlas Tack Corporation.	12	Cary Mfg. Co.	101	Duffy, J. A.	75	Higginum Hdw. Co.	95
Avery Stamping Co.	1	Central Iron & Steel Co.	34	Dunbar Bros.	9	Hiles, C. A. & Co.	86
Baackes Wire Nail Co.	13	Chadborne & Coldwell Mfg. Co.	130	Dunham Nut Machine Co.	44	Hillebrand & Wolf.	58
Babcock & Wilcox Co.	43	Chambers Bros. Co.	132	Dunlap, C. W.	100	Hill, Clarke & Co.	72
Paeder, Adamson & Co.	32	Champion Blower & Forge Co.	58	Dupont Mfg. Co.	50	Hirsch, L. K.	73
Banker & White.	88	Champion Iron Co.	9	Durant, W. N.	41	Hobson, F., Seaman & Co.	22
Bardsley, J.	120	Champion Mfg. Co.	128	Dwight Slate Machine Co.	55	Hoffman, J. W. & Co.	20
Barlow Bros.	130	Chantrell Tool Co.	93	Eagle Anvil Works.	95	Hogan, John L. & Co.	20
Barne, C. K. & Co.	17-25	Chapman Mfg. Co.	140	Eaton, Geo. H. & Co.	54	Hoggson & Pettis Mfg. Co.	59
Barnes, W. F. & John.	53	Chapman Valve Mfg. Co.	39	Eccles, Richard.	119	Hollands Mfg. Co.	85
Barnett, G. & H.	89	Chatillon, John & Sons.	111	Eddy Electric Mfg. Co.	36	Holmes, Booth & Haydens.	2
Barnum, E. T.	9	Cheney, S. & Son.	27	Edge Moor Iron Co.	31	Holmes & Edwards Silver Co.	94
Bass Foundry & Machine Works.	41	Chess Bros.	28	Ehrhardt, Gustave & Sons.	12	Holt, Hiram & Co.	130
Becker, Jno. Mfg. Co.	50	Chester Steel Casting Co.	29	Elken & Co.	27	Horton & Son Co., E.	59
Belden Machine Co.	53	Chicago Foundry Supply Co.	32	Electric Cutlery Co.	92	Hotchkiss, E. S.	107
Bell, Geo. E.	66	Chicago Spring Butt Co.	101	Emory, P. P. Mfg. Co.	9	Houston, C. B. & Co.	20
Bement, Miles & Co.	56	Christy Knife Co.	93	Empire Portable Forge Co.	114	Howard Iron Works.	125
Bemis & Call Hardware & Tool Co.	125	Chrome Steel Works.	27	Enterprise Mfg. Co. of Pa.	110	Howard & Morse.	7
Berger Bros.	125	Church, Isaac.	132	Erle Engine Works.	43	Howson & Howson.	6
Berlin Iron Bridge Co.	10	Church & Sleight.	45	Estes, E. B. & Sons.	160	Hudson, C. E. & Co.	97
Bertsch & Co.	48	Cincinnati Corrugat'g Co.	11	Estey, W. S.	9	Huenefeld, E. H.	109
Best, Fox & Co.	45	Cincinnati Mfg. Co.	109	Ette & Henger Mfg. Co.	130	Hulbert Bros. & Co.	139
Bethlehem Iron Co.	25	Cincinnati Milling Mch. Co.	98	Etting, Edw. J.	20&31	Hunt, Robert W. & Co.	77
Betts, A. U. & Co.	104	Cincinnati Tool Co.	95	Eureka Cast Steel Co.	130	Hurley Bros.	53
Bevin Bros. Mfg. Co.	104	Claffen Mfg. Co.	46	F. & N. Mfg. Co.	129	Huron Grindstone Co.	67
Bickford Drill & Tool Co.	64	Clapp, Geo. M.	72	Fairmount Machine Co.	65	Hussey, E. J. & Co.	74
Bicycle Step Ladder Co.	114	Clark, G. P.	100	Fay, J. A. & Egan Co.	64	Huyett & Smith Mfg. Co.	65
Bigelow, C. R.	72	Clark & Cowles.	6	Fearing, Wm. S.	2	Ideal Mfg. Co.	105
Bignall & Keeler Mfg. Co.	47	Clark Mfg. Co.	101	Ferdinand, L. W. & Co.	105	Illinois Iron & Bolt Co.	57
Billings & Spencer Co.	125	Clark, W. J. & Co.	96	Ferracute Machine Co.	52	Illinois Pure Aluminum Co.	111
Billington, J. H. & Co.	38	Cleveland Block Co.	120	Field, Alfred & Co.	90	Illinois Steel Co.	24
Bingham, W. Co.	105	Cleveland City Forge & Iron Co.	1	Fitch, W. & E. T.	139	Improved Process Glue Co.	103
Birmingham Iron Foundry.	28	Cleveland Hardware Co.	50	Fitchburg Machine Works.	56	Indiana Bicycle Co.	104
Bissell, E. Son & Co.	74	Cleveland Rubber Works.	97	Fitzgerald, S. C.	6	Indiana Wire Fence Co.	3
Blake & Johnson.	13	Cleveland Stamping & Tool Co.	110	Fitzsimons & Co.	20	Ingersoll Milling Machine Co.	54
Bliss Co., E. W.	47	Cleveland Stone Co.	66	Flagg, Stanley G. & Co.	140	Ives, H. B. & Co.	125
Boardman, L. & Son.	83	Cleveland Twist Drill Co.	62	Foley, J. W. & Co.	63	Jacobus, W. H.	132
Bogert, John L.	68	Clinton Wire Cloth Co.	8	Foss Mfg. Co.	130	Jarecki Mfg. Co.	55
Boker, Hermann & Co.	22	Cobb & Drew.	9	Forehand Arms Co.	106	Jeffrey Mfg. Co.	45
Boone, W. C. Mfg. Co.	27	Cockburn Barrow & Machine Co.	129	Frain, E. T.	117	Jenkins Bros.	1
Booth, The Lloyd Co.	81	Coes, Loring & Co.	126	Frankford Steel Co.	31	Jenkins & Lingle.	53
Borden & Lovell.	11	Coes Wrench Co.	126	Fray, John S. & Co.	95	Jenner, H. W. T.	6
Borgner, Cyrus.	31	Coffin & Leighton.	55	Freeport Bicycle Mfg. Co.	105	Jessop, Wm. & Sons.	22
Boston Bridge Works.	17	Colburn, A. L.	60	Frost Thill Spring Co.	119	Johns, H. W. Mfg. Co.	17
Boston Gear Works.	42	Colby Winger Co.	114	Fulton Iron & Engine Works.	64	Johnson Foundry Co.	30
Box, Alfred & Co.	64	Coldwell Lawn Mower Co.	129	Gardner, Jas. & Son.	31	Johnson, I. G. & Co.	140
Bradford Mill Co.	64	Colliau, Victor.	38	Garrison, A., Foundry Co.	28	Johnson, I. H., Jr. & Co.	64
Bradlee & Co.	19	Collins, W. S.	37	Garry Iron Roofing Co.	128	Jones, B. M. & Co.	25
Bradley & Co.	51&139	Conroy, P. J. & Co.	85	Garry Iron & Steel Rfg. Co.	11	Jones, Jesse & Co.	83
Bradley Fertilizer Co.	66	Consolidated Steel & Wire Co.	18	Garvin Machine Co.	72	Jones & Lamson Machine Co.	80
Brass Goods Mfg. Co.	2	Continental Iron Works.	41	Gautier Steel Department.	17&25	Kayser, Ellison & Co.	22
Bridgeport Chain Co.	97	Corning, Edw. & Co.	19	Gay & Parsons.	95	Keeley, Jerome & Co.	20
Bridgeport De-oxidized Bronze & Metal Co.	3	Correspondence School of Mechanics.	64	Gaylord, F. L. Co.	3	Kelley & Woolworth.	90
Bridgeport Gun Implement Co.	62	Cotton, Barclay W. & Co.	19	Gendron Iron Wheel Co.	104	Kelly, Daniel.	72
Briggs, Marvin.	72	Coulter & McKenzie Machine Co.	56	Gilbert & Bennett Mfg. Co.	8	Kennedy, Julian.	35
Bristols' Mfg. Co.	1	Coventry Machine Co.	81	Glazier Stove Co.	81	Kesner, J. L. & Co.	109
Britton, Horace E.	86	Covert Mfg. Co.	121	Goodell Co.	92	Keyless Lock Co.	117
Britton, J. Blodgett.	36	Covert's Saddlery Works.	81&131	Goodell, J. W.	84	Keys, W. W. & R. M. Co.	139
Bronderick & Bascom Rope Co.	6	Cox, Justice, Jr.	21&25	Goubert Mfg. Co.	37	Keystone Clutch & Machine Works.	80
Bronson Supply Co.	111	Cramp, Wm. & Sons S. & E. B. Co.	3	Gould & Eberhardt.	46	Keystone Mfg. Co.	120
Brown, E. E. & Co.	120	Crecent Horse Shoe & Iron Co.	122	Goulds Mfg. Co.	45	Kilbourne & Jacobs Mfg. Co.	127
Brown Hoisting & Conveying Mch. Co.	45	Crecent Phosphorized Metal Co.	3	Grand Crossing Tack Co.	107	King, J. M. & Co.	89
Brown, R. H. & Co.	82	Crecent Steel Co.	27	Grand Rapids Hand Screw Co.	98	Knapp & Cowles Mfg. Co.	99
Brown & Sharpe Mfg. Co.	70	Cresson, Geo. V. Co.	54	Grant Anti-Friction Ball Co.	65	Kohler, F. E. & Co.	120
Bryden Horse Shoe Co.	122	Crossant, M.	114	Grant Corundum Wheel Mfg. Co.	66	Konigsloew, Otto.	129
Buck Bros.	91	Cronk Hanger Co.	118	Great Western Pln Co.	61	Kreischer, B. & Sons.	124
Buckeye Churn Co.	111	Crosby, G. A. & Co.	52	Green, A. H.	125	Krogsrud, W.	83
		Crosby Steam Gauge & Valve Co.	3	Gurney, F. B.	81	La Belle Steel Co.	28
				Haight & Clark.	30	Lafin & Rand Powder Co.	28

Lamberson, B.	75	Newark Machine Tool Works.	80	Ripley Mfg. Co.	95	Taylor & Boggis Foundry Co.	28
Lane & Bodley Co.	40	New Castle Wire Nail Co.	13	Riverside Iron Works.	28	Taylor Iron & Steel Co.	27
Lane Brothers.	117	New Doty Mfg. Co.	65	Roberts, A. & P. & Co.	28	The Audubon.	77
Lang Mfg. Co.	108	New Haven Copper Co.	2	Roberts, Frank C. & Co.	36	Thompson Mfg. Co.	127
Lange Fence & Wire Co.	11	New Haven Mfg. Co.	56	Roberts Mfg. Co.	45	Thomson Electric Welding Co.	27
Lansing Wheelbarrow Co.	127	New Haven Wire Mfg. Co.	6	Robinson, J. M. & Co.	48	Thomson-Houston Motor Co.	64
Lape, W. E.	130	N. J. Wire Cloth Co.	8	Robinson-Rea Mfg. Co.	29	Tiebout, W. J.	118
Laughlin, Alex. & Co.	35	New Process Twist Drill Co.	62	Rogers, The Wm. Mfg. Co.	94	Titchener, E. H. & Co.	11
Lay, Jos. & Co.	113	New Process Raw Hide Co.	56	Rollason Gas Engines.	40	Tod, Wm. & Co.	41
Lea, J. Tatnall & Co.	26	Newton & Shipman.	22	Romer & Co.	119	Toledo Bicycle Co.	105
Lean, D. R. Co.	36	N. Y. Belting & Packing Co.	46	Rouse, Hazard & Co.	81	Toledo Block Works.	120
Leavitt Machine Co.	85	N. Y. Machinery Depot.	71	Rowland, Wm. & Harvey.	143	Toledo Wheelbarrow Works.	127
Le Count, C. W.	122	N. Y. Mallet & Handle Works.	128	Russell, Burdall & Ward.	140	Toomey, Frank.	72
Leechburg Foundry & Machine Co.	27	N. Y. Powder Co.	28	Russell & Erwin Mfg. Co.	15	Torrey, J. R. Razor Co.	91
Lee, Jesse & Son.	94	Nicholson File Co.	19	Russia Cement Co.	83	Totten & Hogg Iron and Steel Fdry.	
Le Massena, C. E. & Co.	67	Nicolls, Wheeler & Co.	18	St. Joseph Pump Co.	85	Co.	28
Leng's, Jno. S. Son & Co.	140	Niles Tool Works.	72	St. Louis Bronze & Aluminum Works	2	Tower & Lyon.	102
Leonard, B. E.	126	North Bros. Mfg. Co.	20	Sabin Machine Co.	4	Townsend, W. P. & Co.	132
Leonard, J.	25	North Bros. Mfg. Co.	81	Salem Foundry & Machine Shop.	64	Tranton Iron Co.	4
Leonard, T. F.	126	Northampton Cutlery Co.	92	Salem Wire Nail Co.	13	Trenton Malleable Iron Co.	30
Leschen, A. & Sons Rope Co.	6	Northampton Emery Wheel Co.	67	Samson Cordage Works.	1	Threthewey Mfg. Co.	34
Levis, Henry & Co.	25	Northwest Malleable Iron Co.	29	Samuel, Frank.	19	Trimont Mfg. Co.	125
Lidgerwood Mfg. Co.	140	Norton Emery Wheel Co.	67	Sargent Co.	31	Troy Nickel Works.	91
Lindsay, Jas. G. & Co.	20	Norton & Jones Machine Tool Works.	45	Saunders's Sons, D.	57	Tucker & Dorsey Mfg. Co.	110
Link-Belt Engineering Co.	53	Norwalk Iron Works Co.	44	Scattergood, H. W.	68	Tudor Iron Works.	1
Lockhart Iron & Steel Co.	26	Nourse, Fred Co.	5	Schaeffer & Co.	128	Tyler Wire Works Co. W. S.	80
Lodge & Davis Machine Tool Co.	70&71	Noyes, B. B. & Co.	93	Scheeler & Sons.	6	Tyson & Zimmerman.	117
Lodge & Shipley Machine Tool Co.	69	Nubian Iron Enamel Co.	68	Schmitz, E. Lothar.	90	Underhill, Clinch & Co.	90
Loring, Chas. Carroll & Co.	139	Obermayer, S. Co.	32	Schneekloth, H. A.	53	Union Fdry & Mch Co.	42
Lovell, Jno. P. Arms Co.	105	Ogden & Wallace.	25	Schneider & Trenkamp Co.	101	Union Hardware Co.	102
Lovell Mfg. Co., Ltd.	77	Ohio Lantern Co.	108	Schraver, O. P. & Co.	79	Union Mfg. Co.	111
Lovell, Tracy & Co.	123	Oil Well Supply Co.	35	Schwarzenberg Bros. & Co.	77	Union Mfg. Co.	59
Lovegrove & Co.	72	Old Dominion Iron & Nail Works Co.	123	Scott, Geo. M.	57	Union Metallic Cartridge Co.	1
Loyd, John.	93	Olds Wagon Works.	112	Seaville Mfg. Co.	2	Unity Door Check Co.	118
Lucas, C. O. & Co.	40	Olmsted, L. H.	96	Scranton Forging Co.	122	Universal Sad Iron Co.	85
Ludlow-Saylor Wire Co.	7	Olsen, A. B.	104	Scranton Supply & Machine Co.	73	Valentine, M. D. & Bro.	31
Lufkin Rule Co.	85	Osborn, G. Edw. & Co.	41	Seaman, Sleeth & Black.	28	Valley Pump Works.	43
Lukens Iron & Steel Co.	19	Ossawan Mills Co.	113	Sellers, Wm. & Co.	65	Van Dorn Iron Works Co.	9
Lundberg, Gustaf.	22	Ostrander Fire Brick Co.	31	Seneca Falls Mfg. Co.	64	Vanderbilt Sash Balance Co.	101
McCabe, J. J.	71	Ostrander, W. R. & Co.	125	Sessions Foundry Co.	29	Van Wagoner & Williams Co.	140
McCaffrey File Co.	88	Otto Gas Engine Works.	42	Seyfert's Sons, L. F.	71	Variety Machine Co.	66
McCallip Fence & Wire Works.	9	Oxford Iron & Nail Co.	11	Shelby Steel Tube Co.	36	Victor Mfg. Co.	118
McClure, Amsler & Co.	35	Packer, C. W.	81	Sherwood Mfg. Co.	40	Vulcan Iron Works.	28
McCoy, Jos. F. & Co.	100	Palmer & De Mooy.	29	Shilling Foundry Co.	32	Waddell Woodenware Works.	113
McFarland, Wm.	4	Palmer Hardware Mfg. Co.	101	Shipman Engine Co.	42	Wadhams Oil & Grease Co.	42
McGowan, J. H. & Co.	44	Pancoast & Maule.	58	Shubert & Cottingham.	120	Wais & Roos, P. & S. Co.	55
McIlvain, Wm. & Sons.	30	Parry Mfg. Co.	106	Shultz Belting Co.	1	Wallace, Wm. H. & Co.	25
McKay, Jas. & Co.	20	Passaic Art Casting Co.	3	Sibbel, Geo. H. & Co.	72	Wardlaw, S. & C.	22
MacKellar Fdry. Facing & Supply Co.	32	Passaic Rolling Mill Co.	25	Sibley & Ware.	52	Warren Axe & Tool Works.	93
McKinney Mfg. Co.	114	Paxson, J. W. & Co.	32	Sickles, Sweet & Lyon.	89	Washburn & Moen Mfg. Co.	4
McKinnon Dash & Hdw. Co.	123	Peabody & Parks.	110	Sidney Steel Scraper Co.	128	Washburn Shops.	60
McLean, John.	44	Peck, A. G. & Co.	140	Sigourney Tool Co.	55	Waterbury Brass Co.	2
McLeod & Henry Co.	31	Pedrick & Ayer.	49	"Silver Finish"	5	Waterbury Farrel Foundry & Machine Co.	44
McNab & Harlin Mfg. Co.	41	Penna. Diamond Drill & Mfg. Co.	43	Silver Mfg. Co.	68	Waterbury Machine Co.	58
Machinists' Supply Co.	72	Pennsylvania Mch. Co.	71	Simonds Mfg. Co.	86	Watson & Stillman.	54
Mackay, Jas. T.	68	Pennsylvania Steel Co.	24	Singer, Nimick & Co.	26	Wayne, A., Mfg. Co.	113
Mahoning Foundry & Machine Shop.	34	Perry, W. H. & Co.	73	Skelly, J. W. & Son.	119	Webster, Warren & Co.	38
Mahoning Valley Iron Co.	25	Philadelphia Drop Forge Co.	30	Skinner Chuck Co.	59	Welland, Chas.	74
Main Belting Co.	46	Philadelphia Engineering Wks.	39	Smith & Egge Mfg. Co.	119	Wellman Iron & Steel Co.	19
Malin & Co.	109	Phillips, E. & Sons.	13	Smith, H. D. & Co.	123	Wells Bros. & Co.	61
Mann, Edwin R. & Co.	20	Phillips, Townsend & Co.	6	Smith, J. D. Foundry Supply Co.	32	West Cocksackie Iron Fdy.	27
Manning, Maxwell & Moore.	62	Phoenix Horseshoe Co.	123	Smith Friction Drill and Tool Co.	61	Western Wheel Works.	105
Manville Machine Co., E. J.	69	Phoenix Iron Co.	19	Smith, Oliver A.	127	Wetherell Bros. & Co.	22&26
Mansfield, H. H.	72	Phoenix Iron Works Co.	19	Smythe, S. R. Co., Inc.	35	Wetherhill, Robt. & Co.	139
Maris & Beekley.	65	Phosphor Bronze Smelting Co.	3	Snell Mfg. Co.	96	White, L. & I. J. Co.	91
Maslin, J. & Son.	44	Pickands, Brown & Co.	24	Sommer's Son, John.	140	White Mfg. Co.	9
Mason Regulator Co.	139	Pierson & Co.	27	Southwark Foundry & Machine Co.	42	White Mt. Freezer Co.	81
Mast, Foss & Co.	85	Pike Mfg. Co.	67	Speidel, J. G.	65	Whitlock Coil Pipe Co.	38
Matthal, Ingram & Co.	1	Pilling & Crane.	20	Speirs, J. C. & Co.	28	Whitlock, Wm.	60
Matthiessen & Hegeler Zinc Co.	2	Pittsburgh I. & S. Eng. Co.	33	Spencer's I. S. Sons.	30	Whitman & Barnes Mfg. Co.	88
Maurer, H. & Son.	31	Pittsburgh Mfg. Co.	53	Springfield Brass Co.	44	Whitney, A. R. & Co.	20
Mayhew, H. H. Co.	94	Pittsburgh Reduction Co.	80	Springfield Emery Wheel Co.	67	Whitney, A. & Sons.	25
Merrill Bros.	20	Place, Geo.	78	Standard Axe & Tool Works.	96	Whitton, D. E. Mch. Co.	60
Merrill Mfg. Co.	57	Plumb, Fayette R.	93	Standard Fibre Ware Co.	82	Wickwire Bros.	7
Merriman, A. B.	54	Plume & Atwood Mfg. Co.	2	Standard Fdry. & Mfg. Co.	30	Wilcox & Howe Co.	119
Meyers, Fred. J. Mfg. Co.	113	Plymouth Mills.	11	Standard Horse Shoe Co.	122	Wild, A. L.	95
Miles, F. S.	13	Pollock, W. B. & Co.	41	Standard Lighting Co.	103	Willey & Russell Mfg. Co.	58&140
Miller & Van Winkle.	4	Poole, Robt. & Son Co.	43	Standard Steel Casting Co.	140	Wilhelm & Co.	28
Miller Lock Co.	118	Pope Mfg. Co.	81	Standard Tool Co.	62	Wilkie, Bothwell & Co.	36
Millers Falls Co.	82&140	Popping, J.	44	Standard Tool Co.	83	Williams, J. H. & Co.	125
Milne, A. & Co.	23	Port Chester Bolt & Nut Co.	124	Stanley Rule & Level Co.	139	Williamson, C. T. Wire Nov. Co.	139
Milton Mfg. Co.	130	Porter, H. K.	124	Stanley Works.	61&116	Williamsport Wire Rope Co.	6
Miner & Peck Mfg. Co.	55	Portsmouth Wrench Co.	124	Stark Mch. & Tool Co.	54	Wilmoth & Hobbs Mfg. Co.	1&3
Mohr, J. J.	20	Pottstown Iron Co.	23	Starrett, L. S.	89	Wilson, Ed. C.	106
Moline Elevator Co.	61	Pottsville Iron & Steel Co.	19	Steam Gauge & Lantern Co.	109	Wilson, E. H. & Co.	20
Monce, S. G.	88	Powell Planer Co.	54	Stearns, E. C. & Co.	80	Wilson, John.	90
Montour Iron & Steel Co.	25	Pratt & Whitney Co.	60	Steel & Iron Improvement Co.	80	Wilson, J. Fred.	132
Moore, Dr. Gideon E.	80	Prentiss Tool & Supply Co.	71	Steptoe, J. & Co.	73	Wilson, W. A.	54
Moore Mfg. & Foundry Co.	64	Prentiss Vise Co.	81	Sternbergh, J. H. & Son.	124	Winslow, Sm'l, Skate Mfg. Co.	104
Moore & White Co.	65	Pullman, J. Wesley.	26	Stevens Arms & Tool Co.	107	Wire Goods Co.	6
Moore & Wickert.	101	Pullman Sash Balance Co.	118	Stewart & Baker.	118	Wister, Francis.	30
Moorhead-McCleane Co.	26	Q & C Co.	11	Stiles & Parker Press Co.	47	Wister, L. & R. & Co.	25
Morgan Construction Co.	4	Queen Anne Screen Co.	95	Stocking, E. B.	6	Witherow, Jas. P. Co.	35
Morgan Spring Co.	4	Quint, A. D.	96	Storm Mfg. Co.	90	Wolcott & West.	75
Morrison, Robert.	37	Rainey, W. J.	1	Stover Novelty Works.	57	Wolf, R. H. & Co., Ltd.	5
Morse Twist Drill & Machine Co.	62	Rand Drill Co.	43	Stover Mfg. Co.	119	Wollensak, J. F.	88&120
Morse, Williams & Co.	65	Randolph & Clowes.	1	Stow Flexible Shaft Co.	62	Wood Alan & Co.	20
Morton Mfg. Co.	50	Read, Wm. & Sons.	139	Stow Mfg. Co.	62	Wood, R. D. & Co.	30
Morton, Thos.	117	Reading Hardware Co.	116	Stringfellow, T. B. & Co.	85	Wood, W. Dewees Co.	26
Moseley Iron Bridge & Roof Co.	9	Reeves, Paul S.	140	Stuart & Peterson Co.	110	Woodruff Mfg. Co.	63
Motley, Peter.	119	Reeves Pulley Co.	61	Sturtevant, B. F. Co.	56	Woodward & Rogers.	50
Mount Carmel Bolt Co.	139	Rely, J. W.	23	Sun Mfg. Co.	112	Worcester Mch. Screw Co.	132
Myers, F. E. & Bro.	84	Reliance Wire Wks Co.	8	Supple Hardware Co.	129	Worthington, Henry R.	44
Myers, H. M. Co.	89	Reynolds & Co.	14	Sweatt Mfg. Co.	127	Wrenn, Whitehurst & Co.	75
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National Machinery Co.	37	Rice, C. F.	75	Swindell, W. & Bros.	35	Wright, Peter & Son.	97
National Pipe Bending Co.	40	Richards, D. W. & Co.	73	Syracuse Specialty Mfg. Co.	128	Wrought Iron Bridge Co.	18
National Saw Co.	86	Richardson, C. F. & Son.	85	Syracuse Twist Drill Co.	63	Wurster, F. W. & Co.	140
National Screw & Tack Co.	12	Richmond Safety Gate Co.	66	Taintor Mfg. Co.	88	Wyman & Gordon.	30
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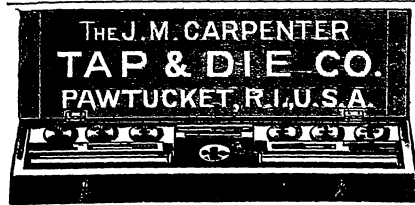
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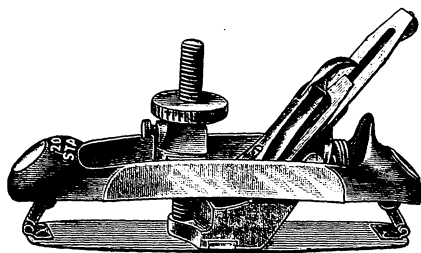
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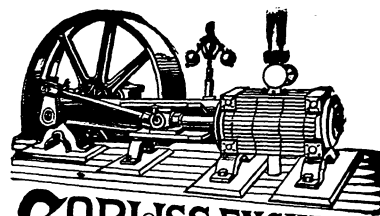
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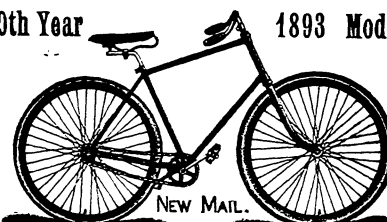
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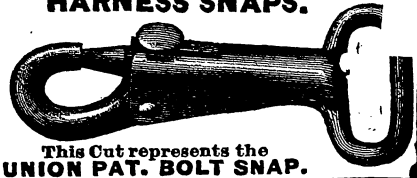
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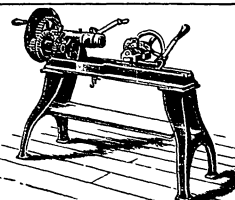
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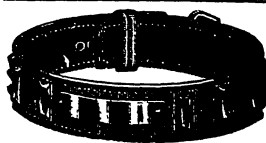
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THE IRON AGE

THURSDAY, JULY 6, 1893.

Coal Consumption in War Vessels.

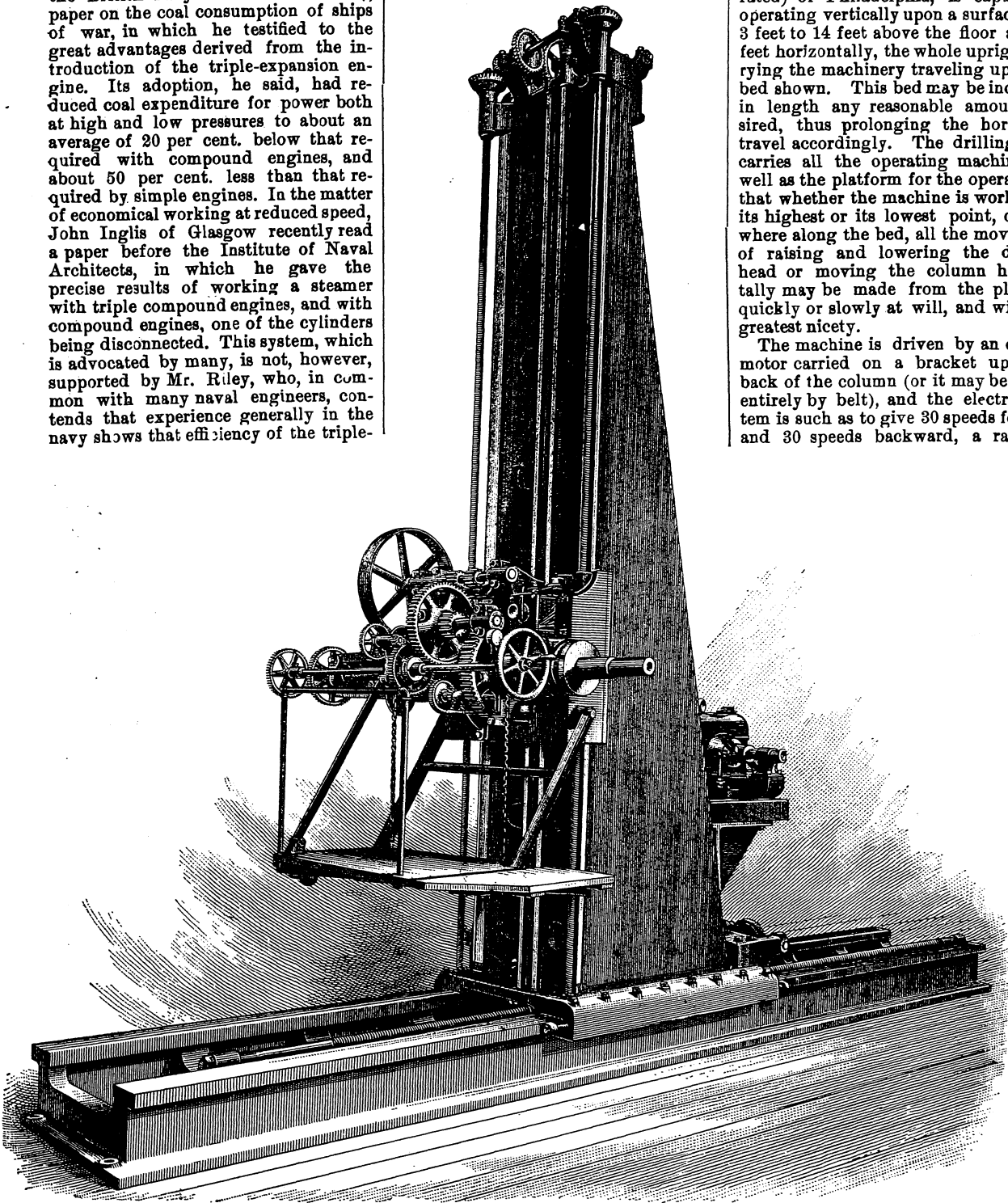
—In a paper read recently before the Royal United Service Institution of Great Britain, Staff Engineer Riley of the British navy read an interesting paper on the coal consumption of ships of war, in which he testified to the great advantages derived from the introduction of the triple-expansion engine. Its adoption, he said, had reduced coal expenditure for power both at high and low pressures to about an average of 20 per cent. below that required with compound engines, and about 50 per cent. less than that required by simple engines. In the matter of economical working at reduced speed, John Inglis of Glasgow recently read a paper before the Institute of Naval Architects, in which he gave the precise results of working a steamer with triple compound engines, and with compound engines, one of the cylinders being disconnected. This system, which is advocated by many, is not, however, supported by Mr. Riley, who, in common with many naval engineers, contends that experience generally in the navy shows that efficiency of the triple-

speed decreased to 6.77 knots the coal consumption dropped to 21.6 tons per day, or $7\frac{1}{4}$ knots per ton of coal. He strongly advocated a close study of the

Horizontal Drilling, Tapping and Stud-Inserting Machine.

The machine here illustrated, built by the William Sellers & Co. (Incorporated) of Philadelphia, is capable of operating vertically upon a surface from 3 feet to 14 feet above the floor and 16 feet horizontally, the whole upright carrying the machinery traveling upon the bed shown. This bed may be increased in length any reasonable amount desired, thus prolonging the horizontal travel accordingly. The drilling head carries all the operating machinery as well as the platform for the operator, so that whether the machine is working at its highest or its lowest point, or anywhere along the bed, all the movements of raising and lowering the drilling head or moving the column horizontally may be made from the platform quickly or slowly at will, and with the greatest nicety.

The machine is driven by an electric motor carried on a bracket upon the back of the column (or it may be driven entirely by belt), and the electric system is such as to give 30 speeds forward and 30 speeds backward, a range so



HORIZONTAL DRILLING, TAPPING AND STUD-INSERTING MACHINE.

expansion engine is satisfactory over a wide range of power. To prove this he stated that on a modern battle ship, steaming at slightly over 13 knots, the coal consumption was at the rate of 2 knots per ton of coal; at about 11 knots, 3.7 knots per ton of coal; and as the

question, believing that if care were taken, particularly in the running of auxiliary machinery, the distance which some vessels might steam without coaling would be doubled. On this care he placed more reliance than on structural alterations.

great as to adapt it for any class of work. The horizontal movement of the column upon the bed and the vertical movement of the drilling head upon the column are capable of a maximum of 20 feet per minute, and thus permit rapid adjustment. The belt system from the

motor, shown in Fig. 2, includes a tightening frame, so that the belt is always in proper tension whether the drilling head is at the top or bottom, or at any intermediate point. The feeds to the spindle are given through friction disks, and in two series for fine and coarse, with a wide range to each, the maximum being about $\frac{1}{4}$ inch per revolution of the spindle.

It will be noticed that the power is not transmitted through long shafts, but is applied directly by the belt to the drilling head, the two square shafts shown being simply for engaging and disengaging the clutches for the vertical and horizontal movements. There is, therefore, an entire absence of the torsional strains in the long transmitting shafts usually employed. The levers to manipulate the horizontal and vertical movement of the drilling head and to engage and disengage the feeds, start, stop and reverse the driving mechanism, are grouped so as to be handled by the operator from one position, and the handles for manipulating the spindle are also grouped, thus permitting the largest possible product. The operator's platform is carried by a swing frame, so that as the head approaches the bed the platform accommodates itself to the lowest point. The same company have built similar machines incorporating milling feeds, the importance of which, in combination with the great range of speeds mentioned, will be appreciated.

Foreign Patents in Italy.

In the Italian patent law of 1859, says an English exchange, two kinds of patents are mentioned—namely, "Patents of Invention" and "Patents of Importation." Some time ago the question was raised before the Italian law courts as to whether an Italian patent for an invention already patented in a foreign country, and taken out as a patent of invention instead of as a patent of importation, would be valid. In two cases the Court of Cassation of Turin decided that such patents were not valid, and in another instance the Court of Cassation of Rome decided that they were valid. The Court of Appeal of Turin subsequently gave a similar decision as the Court of Cassation of Rome, and as the question was again brought before the Court of Cassation of Turin the latter recently gave its decision, canceling its two prior decisions and admitting that Italian patents for inventions already patented in a foreign country are valid whether they are taken out as patents of invention or as patents of importation. This is a question of great importance, for had the former decisions prevailed the large majority of Italian patents taken out by foreigners would have been void, they having been generally always taken out as patents of invention. The only difference between a patent of invention and a patent of importation is that the former can be granted for a period of 15 years, while the duration of the latter is limited to the number of years for which the prior foreign patent has been granted, not exceeding 15. With an application for a patent of importation it is necessary to file an official copy of the prior foreign patent vised by the Italian Consul.

A Genoese firm are reported to have collected and forwarded to Rio de Janeiro 38,000 Italian and Spanish emigrants during the past year, under a contract with the Brazilian Government.

Machinery Exhibits.

Durant's Counting Register.

In Section E, Column T-148, in north end of gallery, Manufacturers Building, Walter N. Durant of Milwaukee, Wis., exhibits an extensive line of electrical counting registers for various purposes, which have recently been placed on the market. In designing the machine the object sought was twofold: 1, to simplify the method of transmission of motion from the engine, printing press, &c., to the register; and 2, to permit of the placing of the latter in any desired location more or less remote from such machine, irrespective of the distance and of the number of corners necessary to be turned in reaching it. In many instances it is considered desirable to have the strokes, revolutions, or other operations of a machine registered in the superintendent's

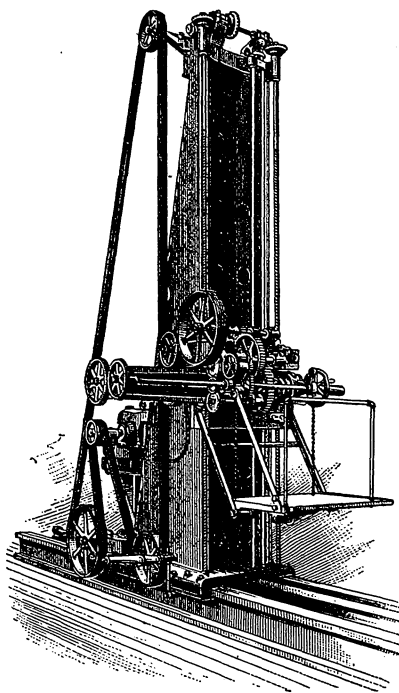


Fig. 2.—Horizontal Drilling, Tapping and Stud-Inserting Machine.

office; and this, by a purely mechanical means of transmission, must involve considerable complication of mechanism and unreliability of action, even if not absolutely impossible. Even in case of a register placed directly on the machine, or in close proximity to it, it frequently happens that the transmission of motion from the most suitable or convenient part will require a multiplication of levers, rods and joints, which may ultimately have an impairing effect on the reliability of the register from the lost motion caused by wear and tear. Of course, there are many cases, perhaps a majority, in which such conditions do not exist, and the mechanical transmission, therefore, is entirely satisfactory. But where, from any cause, the latter is impracticable, inconvenient or unreliable, the electric current, by means of its easily led conductors, offers a medium of transmission which is both inexpensive in cost of installation and practically infallible in its action. With properly designed electro-magnetic mechanism for transmitting the two reciprocating movements to some reliable device for registering them, the electrical counter would seem to be a

decidedly improved form of apparatus, and one which is in accord with the tendencies of this electrical era. While in the Durant machine both the transmitting and registering devices are novel, the latter is considered the more important feature, by reason of its exceedingly simple construction and its perfect reliability of action, as compared with the ordinary forms of meter or counter registers. The electrical feature consists of three conducting wires leading from the engine or other machine, and connecting to two electro-magnets upon the instrument. The latter are alternately excited by means of a switch actuated by some reciprocating or rotating part of the machine for each stroke, whereby the electrical circuit is formed for the magnets corresponding, respectively, to the forward and return strokes. The motion is imparted to the registering mechanism by means of a lever armature, vibrating between the two magnets, as the circuits are made and opened by the movements of switch. A switch on the instrument is provided by which it may be cut out or put in circuit, as desired. Either a chemical battery or dynamo current may be used, the electro-motive force required being about 3 volts. The readings of the register are by the ordinary arrangement of figures in a horizontal line from zero to 10,000, 100,000 or 1,000,000, according to the number of dials used. The dials, however, are disks numbered from 0 to 9, instead of drums, as usually employed for the purpose, the figures showing through the perforations in cover plate in the order of their revolution from right to left on the first, third, &c.; and from left to right on second and fourth. The shaft of each dial carries, between the bearing plates, a toothed wheel and a drum; and, with the exception of the last in the series, a single tooth or wiper. The wheel on the units shaft has ten star teeth, while all the following wheels in the train are provided with the same number of gear teeth. Pivoted at the upper left-hand corner of the base plate, and actuated by the armature, is a vibrating pawl or lever, similar to that used for a clock escapement. It is provided with two arms, which engage, alternately, the teeth of the star wheel on the units shaft, and at each return stroke, representing a complete revolution of engine, move the dial forward one figure, or one-tenth of a revolution. The stroke of the armature completing the revolution of any one of the wheels causes the single gear tooth on its shaft to engage the gear wheel on the shaft next in order, and the latter is thereby indexed around one tenth of its revolution, or 1 figure on the dial. Thus, if all of the dials stand at 9, the next succeeding stroke will cause each of the single teeth to engage and all of the dials will be indexed forward simultaneously to stand at zero, as would be the case with any form of counter irrespective of the form of mechanism employed. It will be readily seen, however, that with this practically frictionless train of shafts and gears—the latter of which are entirely disengaged for nine-tenths of the time required for their respective revolutions—it is necessary during the interval to hold them securely in their indexed position as left by the last engagement with the single tooth. For this purpose a very simple and effective device is employed which automatically locks and releases the gears at intervals determined by the relative position of the one preceding it in the train from which it receives its motion. Above

the star wheel on the units shaft and upon each succeeding one, alternately above and below the gear wheel, is placed a drum, having in its face a single pocket or recess of radial form, the position of which bears a certain relation to that of the numerals on dial. At the lower side of the train (the instrument being in its working position) and midway between the centers of the first and second shafts, is a fixed pivot carrying a double lever or pawl, one arm of which bears against the face of the first drum, while the other engages the teeth of the second wheel and locks it securely in position. At the stroke of the armature lever by which the star wheel is moved to bring the zero of units dial under the aperture in face plate, the recess in the drum is moved into position opposite the end of the pawl. Simultaneously the single tooth engages the gear wheel and moves it forward one space by throwing out the locking arm of the pawl—the other arm being allowed to drop into the recess in the drum. The next stroke of the armature throws the pawl out of this recess upon the face of the drum, and causes the other arm to re-engage the teeth of the gear wheel, thereby locking it until released at the next complete revolution of the units shaft. The pawls locking the succeeding wheels throughout the train are placed alternately above and below the latter, and operate in all respects as described for the first—the relation between any wheel and the one following it being, of course, the same, whether it be from units to tens or thousands to ten thousands. It is clear that—as the gears are thus securely locked—it is impossible for the dials to move out of their correct order, or until released by the drums in the regular cycles of their respective movements, and thus the notation must, of necessity, be absolutely correct so long as the armature is in motion. It will be noticed, also, that there is no delicately constructed or adjusted mechanism, and that any lost motion which might occur from wear and tear of long continued service cannot in the least affect the action of the instrument, beyond the fact that, in an exaggerated case, the figures on the dials might not register exactly in the centers of the apertures in the face plate. The instruments shown in the exhibit are of neat and tasteful appearance, though no attempt has been made to give them more than the ordinary commercial finish. In addition to the main exhibit, the instruments are shown in operation for counting the work of some of the printing presses in Machinery Hall.

The Merrill Mfg. Company

of Toledo, Ohio—Section 13, Columns I and J 40 and 41—exhibit a large line of pipe threading and cutting machines of improved design, including sizes from $\frac{1}{4}$ inch to 8 inches capacity. Three styles are shown, viz.: hand only, hand and power and power only. While the range of capacities of the last two styles is the same, there is a radical difference in the general design, although the distinguishing features of the threading and cutting-off devices are practically alike in all. The die head is made to carry five independent detachable cutters or chasers, which are brought into position for cutting threads of the desired size and opened for release at the end of cut by a single movement of the operating lever. By means of an adjustable stop working in a graduated slot the closing motion of the lever is limited to the position necessary for cutting each of the different sizes of pipe for which the

pitch of thread of the cutters is standard, thus obviating the necessity for changing the latter, except when a different pitch of thread is required. When desired, however, the change of cutters can be quickly made, as it is only necessary to throw the lever to the extreme releasing position in order to disengage the entire set simultaneously, when the new set is inserted and engaged by the reverse motion of the lever, and is then ready for operation. The movement of the cutters is effected by means of a cam ring to which the lever is attached, and having opposite each cutter a curved wedge, formed by an eccentric circular arc of about 60° , and having on its inner face a flange or rib which engages a corresponding cross slot in upper end of cutter. At the small end of wedge, or between it and the large end of the preceding one, is a radial recess whose size is suitable to afford ample clearance to the head of the cutter to effect its withdrawal or insertion. There are, of course, suitable radial slots or slides in body of head, in which the cutters are guided, the fitting of which is necessarily accurate, to prevent lost motion, which would seriously affect their clean cutting. The thrust of cut is supported by the broad inner face of cams, the flanges being used only for the outward movement in releasing. A cover plate incloses and protects the cam ring, and is provided with a central opening corresponding in size to that in head. The graduated scale by which the closing stop is set is made adjustable to compensate for any variation in length of cutters caused by wear or re-chasing; and by this means, if the setting be correct for one size, it must necessarily be so for all other sizes for which the same cutters are used. A noticeable feature of the power machines is a peculiar lead-screw device for automatically feeding the pipe to the die in starting the cut. It consists of a screw, cut on the sleeve at the back end of the head bearing, and provided with an open nut, to which is attached by means of steel straps a split friction collar. The latter is clamped upon the body of the pipe by simply tightening a small cap screw, and as the nut feeds forward on lead-screw the pipe is drawn into the die. In order to make the lead screw answer for all of the different threads within the capacity of machine, its pitch is made the same as that of the largest pipe, and, as the lead and die correspond, of course there can be no difficulty. When, however, in cutting smaller pipe, the pitch of dies is less than the lead, the grip of the friction collar is so adjusted as to allow of its slipping forward on the pipe to an amount equal to the discrepancy between the two pitches. In other words, the friction is made only sufficient to give the necessary feeding pressure on the pipe to insure its properly entering the die and avoid danger of slippage and consequent stripping of the thread at starting. The cutting-off tool is arranged in a sliding holder on the front of the head and is fed to the cut by means of a rack and pinion operated by a hand key, and is made to give the proper feed by holding the key stationary, while the head revolves. This is an important feature, as it gives, in effect, an automatic feed and prevents danger of breaking the cutter or damaging the pipe through forcing too rapidly. All of the different sizes of machines are provided with the rack and pinion motion to vise carriage for feeding the pipe into die, in addition to the lead screw, as described for the power

machines. The vises have powerful grips, operated by a pair of right and left hand screws provided with hand wheels. On all of the machines arranged for hand power the dies are revolved by means of a small pinion geared directly into the gear on die head and operated by a long ratchet lever. The heavier machines are provided with three-speed cones of large diameter and broad faces, and have three additional changes of speed by means of internal gearing in the cone, the latter being, in effect, similar to the ordinary back gears of a lathe. The machines all appear to be well and substantially built.

The Detrick & Harvey Machine Company

of Baltimore, Md. (Section 13, Column J 41), exhibit two of the leading sizes of their open-side planers, an illustrated description of which was published in *The Iron Age* of April 7, 1892. The machines shown are one of 48 x 48 inches by 16 feet, and one 36 x 36 inches by 12 feet. Both are shown in almost continuous operation, the material being heavy slabs of cast iron. The depth of cut and pitch of feed are made greatly in excess of what may be considered the average duty on ordinary shop work, in order to demonstrate the power and rigidity of this type of machine as compared with those upon which the cross head is supported in the ordinary manner, by two uprights. Notwithstanding the severe strain to which they are subjected, the machines run quietly and steadily, and with an entire absence of the chatter or springing which indicates an overworked tool. With the overhung cross head characteristic of the machine, this would be impossible were the construction of the parts under strain less carefully designed. Both upright and cross head are made very heavy and provided with long bearing surfaces, which give a rigidity equal to that of the best makes of the ordinary type of planer. Owing to the absence of convenient facilities for hanging an overhead counter-shaft (which has been a cause of much embarrassment to exhibitors in this department) the plan was adopted of mounting it, by means of cast iron curved uprights or stands, on the top of machine housing, and thence belting directly from driving pulley on line shaft to the machine itself. While this arrangement was made entirely with a view to meeting the exceptional conditions of location, it is so admirable, in all respects, as to merit adoption as a standard feature of the machines, costing no more than the ordinary hangers, and rendering, as it does, the machine self contained and independent of all considerations of location save that of the line shaft. Although these stands are but about 4 feet in height (above top of housing), the distance between counter and the driven pulleys on machine is sufficient to afford ample length of belt to enable the latter to work to best advantage and without undue tension. In addition to the two machines, there are exhibited several large photographs of planers of the open-side type, but of different styles in details of construction. In one picture is shown the 43 x 48 inch machine, planing a casting of a size which would require a tool of the ordinary type of the largest size. The company have recently shipped to the United States Arsenal at Watertown, N. Y., one of these planers of the largest size yet built. Its dimensions are for planing work 11 feet wide, 8 feet high and 25 feet long. The total weight is about 150,000 pounds; that of the table alone being 26,000 pounds.

Artistic Wrought Iron.

v.

The Artist-Workman.

Before the evolution of the present industrial era of machinery and subdivision of labor the craftsman was almost invariably his own designer. Handicrafts did not, in fact, exist apart from art, and the workshop train-

labors on his own designs as in the days when art in metal was at its zenith.

One such place we know of in New York City, and we believe there are a few others scattered here and there, where makers of beautiful work in wrought iron carry out the conceptions of their own brains with the trained hands of skilled labor. The art smithery which we refer to is that of Becker & Hammer at 150 West Twenty-ninth

quickly obtained recognition and the firm was soon crowded with orders. Such has been their success that the little shop will before long have to be relinquished for more pretentious premises, affording larger facilities for production.

The brothers Becker and their partner, Hammer, are good types of the intelligent and progressive Teutonic artisan. To innate artistic taste they have added a good general education and considerable study of the literature of their craft, which has been supplemented by a thorough apprenticeship at the forge and bench in their own country. The work done by them is conscientious and thoroughly artistic, and of its kind unsurpassed in this country. The griffin sign, for example, before mentioned, Fig. 22, which hangs at their door, is of home design and manufacture. The details of this object are carefully wrought out, the treatment of the subject being fresh and full of merit. The body of the monster is hollow, and is made in two pieces of sheet iron, hammered to shape, and so cunningly joined that the place of junction is almost invisible. The whole piece is full of life, and suggests one of the old sixteenth-century signs which adorned the buildings of some ancient German cities.



Fig. 22.—Griffin Sign.—Becker & Hammer.



Fig. 23.—Wrought-Iron Rose.—Becker & Hammer.

ARTISTIC WROUGHT IRON.

ing and apprenticeship were common to all. Thus, a painter was a color grinder and the artist in iron a workman at the forge and bench, going through all the technicalities of the studio and workshop before he became a master of his craft. Nowadays, however, particularly in the craft of which we are treating, these conditions have changed; design and workmanship are, as a rule, divorced. The designer is simply a designer and his ideas on paper are referred to the artisan to be materialized by him at the forge and bench. Now and then, nevertheless, we still come across a little smith shop of the old kind in Europe, but not often in this country, where the artist-workman

street, to whose work we had occasion to refer in connection with Fig. 1 of our first article. The handsome sign depicted in Fig. 22 hangs over the door of the establishment. On the second floor is situated a smiths' shop of modest dimensions containing a single forge and two or three work benches. The proprietors are three young Germans who left the Fatherland but a few years ago to bring their knowledge and skill into the larger market of the United States, where they believed that a wide field for their talents was open to them. With the help of two or three compatriots, also trained iron workers, a little shop was opened. The artistic work put out from there

Flowers in Iron.

Some of the most exquisite work done by these artist-workmen is in the shape of flowers, particularly roses. We give herewith, in Fig. 23, the picture of a spray of these flowers made by Becker & Hammer, which in its grace and fidelity to nature is unsurpassed by anything of its kind we have seen. The original is of natural size, its model having been the actual flower freshly plucked. The absence of that stiffness and conventionality which so often mark metal reproductions of natural objects is very apparent. There is a truth and freshness about the sprig which make one marvel how so much life and naturalness could have been in-

fused into a flower of iron. And in truth the fashioning of such an object involves a great amount of care and labor. This particular example contains 42 several pieces, each of which has been separately welded on to the stem.

The operation of welding together the parts of such a dainty object is a very delicate one, requiring the greatest skill and judgment on the part of the workman. To make a similar spray of flowers would occupy the labor of two men from a whole day to a day and a half. The heating and joining have to be done very quickly, as any delay or overheating of the fragile stem of a leaf or petal might result in the marring of the whole piece. The petals, it should be mentioned, have been previously cut out, shaped and curled in the natural manner shown in the cut. From 18 to 20 separate petals are contained in one rose. These are attached one by one to the stem by welding, the outer ones

Sometimes these iron roses are made by slipping four or five cups with scalloped edges over a nail which forms the stem, the whole being welded together by firing in a clay envelope. But the flowers produced in this way are more stiff and unnatural, although pretty in their way and forming beautiful decorative adjuncts to larger work. Such a spray of flowers as that described, however, is a gem of art in itself, and is almost too good to be used as a mere feature of some design. These sprays of flowers are, however, used in the adornment of brackets, sconces, candlesticks, photograph frames and other dainty wrought-iron articles of use and ornament which are a specialty of the makers. Larger work is also done by them, although at present the space at their disposal precludes the handling of heavy architectural iron work.

Some Modern Work.

Leaving the Becker & Hammer estab-

by the Yale & Towne Company, were among the features of the exhibition contributed by this firm, which testified to the merit of American art workmanship.

In Fig. 25 is shown a very elegant example of a modern wrought iron grille, designed and executed at the shops of John Williams, New York. The elaborate foliated scroll work and flowing lines of the design present a very rich and yet a light appearance, which is peculiarly pleasing.

A small detail from the same source, showing a portion of an iron railing of original design, is given in Fig. 26. The *motif* in this pattern is simple, yet bold and striking. Each circle is composed of four curved round iron bars, the interior ends of each being attached by a double cord-like band of iron. No welding is made use of.

Art Hardware.

Some of the modern art hardware in

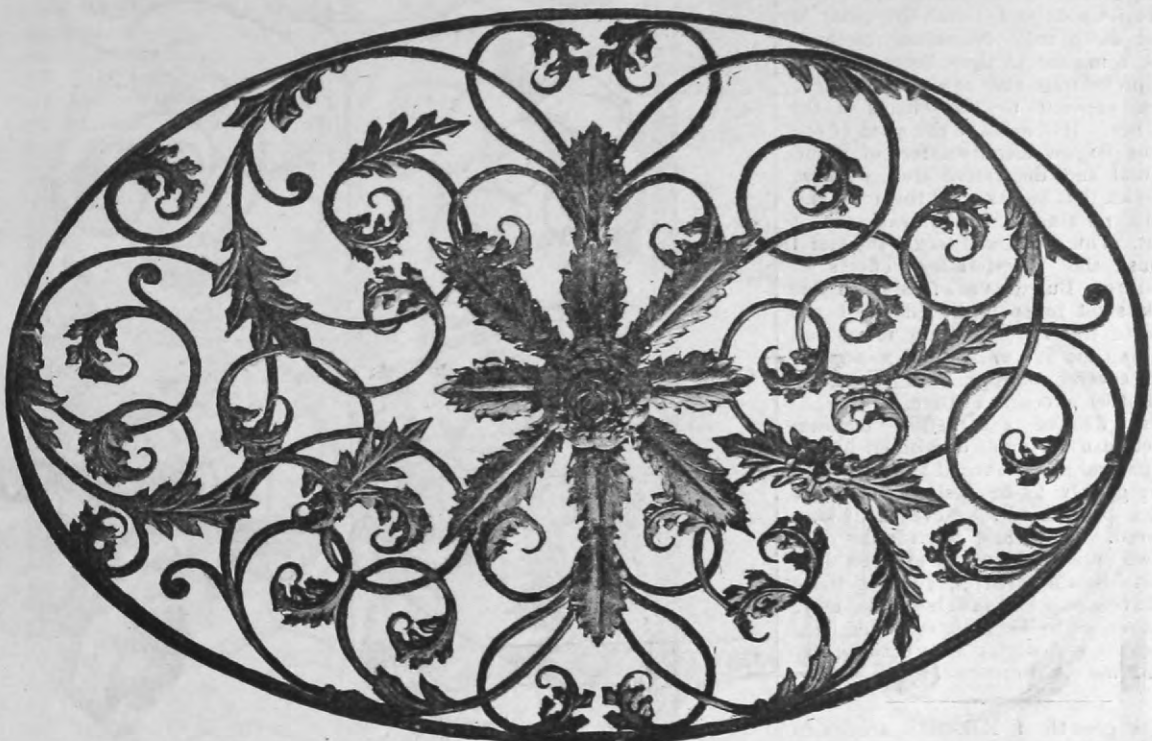


Fig. 24.—Wrought-Iron Grille.—Yale & Towne Mfg. Company.

ARTISTIC WROUGHT IRON.

first, and so on, approaching the center until the whole are fixed. The flower does not, however, then take the appearance seen in the illustration. The petals when welded on stick out all round the head of the stem like a full blown rose about to fall to pieces. Each is carefully folded up into its place with the pliers and fixed in the natural position it would occupy either in a half open or full-blown rose.

The details of the flower are faithfully reproduced, even to the cushion like core with stamen and pistils, and each rose can be opened out at will. It is this care in copying the natural model which gives the work of these men its great charm. In a half-blown rose, for example, the inner petals have that crumpled appearance which we see in the natural flower when plucked open. The iron used for this purpose is the tough and pliable Swedish kind, which alone will bear to be bent back and forth in this manner. Ordinary metal would soon break under the strain.

ishment, we may turn our attention to a few more examples of art in wrought iron which have been made recently by American concerns, and which give good evidence that the artistic side of architectural metal work is receiving considerable attention in this country.

The Yale & Towne Mfg. Company of Stamford, Conn., and New York City, who are well-known manufacturers of hardware, have recently turned their attention to supplying the growing demand for wrought-iron objects in architectural work. This concern had a striking display of art hardware in iron and other metals at the recent exhibition of the New York Architectural League, as well as some grilles of beautiful designs. The oval grille which forms the subject of illustration No. 24 was one of the specimens exhibited. Another of excellent design and workmanship, made for the house of H. J. Crocker, San Francisco, Cal., as well as a mausoleum door, designed by Adler & Sullivan of Chicago, and executed

iron is very promising, and this branch is now receiving more attention. The treatment of locks, knockers, handles and door plaques affords a good field for beauty and variety in design. A large amount of valuable material from which manufacturers might obtain good ideas in this line exists in the collections of ancient iron work in museums all over the world. Our own Metropolitan Museum in New York possesses some good specimens of antique wrought-iron objects which are worthy of study by those interested in such matters, and which would well repay hardware makers on the search for new patterns. The illustration, Fig. 27, given herewith shows a decorated knocker of hammered iron made in New York after an old German Renaissance model, which is suggestive of what may be done in this line.

Among the artistic objects of wrought iron which are now being produced in America, outside of purely architectural work are such things as candelabra,

standard and hanging lamps, lanterns, gas and electric light fixtures, candlesticks, brackets, andirons, screens and decorative plaques. These, with a few other articles of use or ornament, comprise the limit of present attainment. But the field of manufacture in this material might be infinitely varied and extended. There is hardly any limit to the possibilities of wrought iron as a decorative material, and it is possible that the metal is just about to commence an era of extended application in the United States which will give additional emphasis to the appellation claimed by many for the present epoch as pre-eminently the iron age.

A word in closing in regard to the most serious objection which applies to the use of iron for decorative purposes—namely, its tendency to rust. Unfortunately, this characteristic of the metal renders it very perishable as compared with other metals and stone, and to this cause we may attribute the loss to ourselves of many priceless treasures of wrought-iron work made in former centuries and unprotected by paint or other safeguard. Numerous methods have from time to time been proposed for preventing the oxidation of iron when exposed to the effects of the weather. But we have the word of one of the largest manufacturers of architectural and decorative iron work in America that he has tried them all and found nothing of any avail except paint. This alone will secure the metal against the deteriorating effects of moisture. But the use of paint on fine work is apt to spoil the effect of the delicate tracery by filling it up and blunting the fine sharp lines, especially after several coatings have succeeded each other in course of time.

An effective anti-rusting medium which can be applied without hiding the natural appearance of the metal is a thing greatly to be desired; no doubt such a process will be eventually discovered. Meanwhile paint is the only known preservative of exposed iron work. Smaller articles, such as those we have mentioned in this article, may, however, easily be kept in order by a little care and wiping over occasionally with some oily substance.

The growth of European armies in the last 23 years is strikingly set forth in the following table of comparison of the armies of Europe on a war footing, in 1869 and in 1892, recently furnished to the *New York Herald* by its Paris correspondent:

	1869.	1892.
France.....	1,350,000	4,350,000
Germany.....	1,300,000	5,000,000
Russia.....	1,100,000	4,000,000
Austria.....	750,000	1,900,000
Italy.....	750,000	2,236,000
England.....	450,000	602,000
Spain.....	450,000	800,000
Turkey.....	320,000	1,150,000
Switzerland.....	150,000	489,000
Belgium.....	95,000	258,000
Portugal.....	70,000	154,000
Holland.....	45,000	185,000
Denmark.....	45,000	91,000
Montenegro.....	40,000	55,000
Greece.....	35,000	180,000
Roumania.....	38,000	280,000
Servia.....	25,000	180,000
Totals.....	6,958,000	22,248,000

It will thus be seen that the numbers have more than tripled since the time of the Franco-German war.

Surgeon-General Wyman believes America has an even chance of escaping the cholera altogether this year. Meanwhile it is not reassuring to read that the scourge is daily assuming more serious

proportions in Asia, while sundry cases are reported from Mediterranean ports which have had communication with the East. It is almost inconceivable that the city of Hamburg, which was the European headquarters of cholera last year, should still be content to endure the polluted water supply, which, it was admitted, was the most fruitful

land, 10,952; South Australia, 10,936; Western Australia, 5389; Tasmania, 525, and New Zealand, 16,375; total, 85,452.

A new mineral is reported from Australia. The ore is found in the alluvial tin fields near Greenbushes, Western

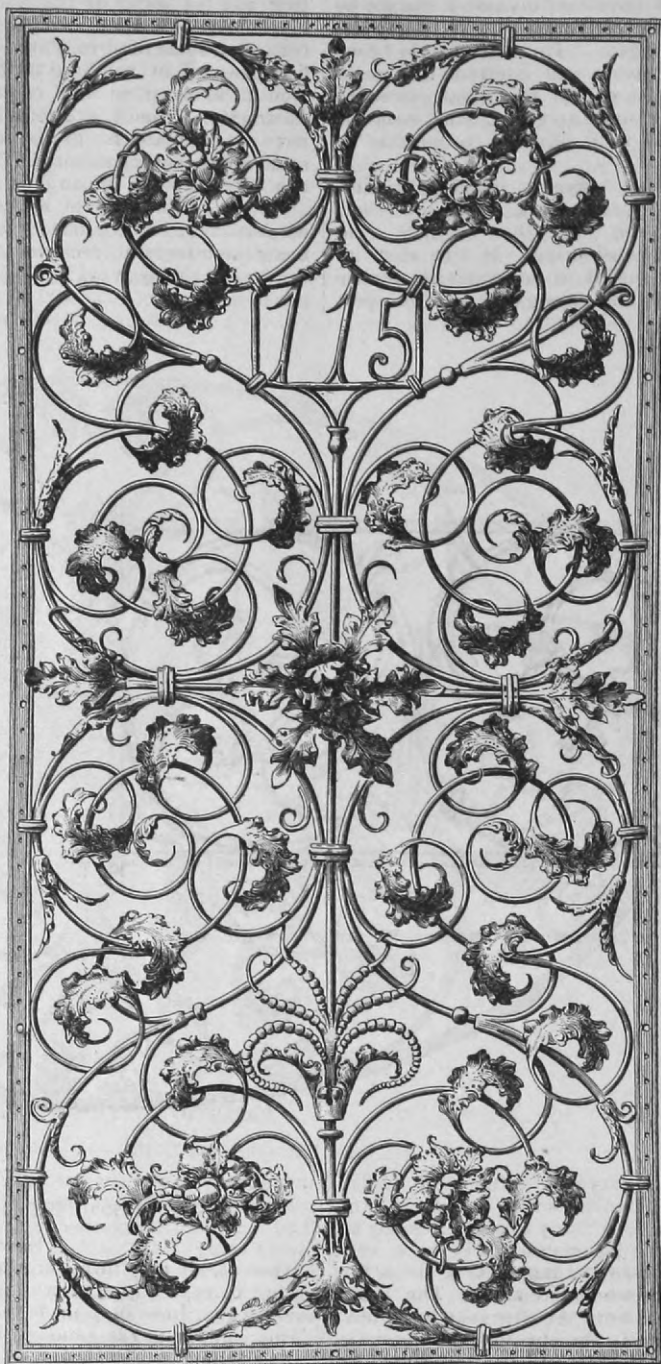


Fig. 25.—Modern Wrought-Iron Grille.—John Willixms.

ARTISTIC WROUGHT IRON.

agent in spreading the disease which raged there during the past summer.

The population of the various Australasian colonies at the close of 1892 was estimated as follows: New South Wales, 1,197,050; Victoria, 1,167,329; Queensland, 421,297; South Australia, 336,702; Western Australia, 58,674; Tasmania, 153,144, and New Zealand, 650,433. The increase of population in each colony last year was: New South Wales, 31,750; Victoria, 9525; Queens-

Australia, where it is locally known as "pale tin" or "resin tin," the color varying from a dirty greenish white to a dark flesh hue. It is as heavy as tinstone, and in some respects similar to this mineral, but simple tests indicated it to be an ore of antimony, with, however, characteristics which make it considerably different from common ores of that metal. Complete analysis, indeed, showed the substance to be essentially a tantalate of antimony. A suitable name for the mineral has not yet been found.

Oxygen in Steel.

In a written discussion of a paper presented by W. R. Webster before the American Institute of Mining Engineers, Henry D. Hibbard of High Bridge, N. J., says:

There is one chemical factor which has not been considered in the author's tabulation of tests, but which is none the less important because it cannot be practically estimated, and that is the element oxygen. This element has been, and probably will continue for some time to be, one of the great causes of the continual discrepancies between the chemical and physical properties of steel.

Probably oxygen occurs, in important proportions, only in soft steel such as that which we are now considering. In this steel its physical effect is to diminish tensile strength and elongation. The per-

Above 0.50 per cent. it is straight, which may be ascribed to the probability that with more than half of 1 per cent. of manganese in the steel not much oxygen can be present, or in any event not sufficient to produce a noteworthy effect. Below 0.20 per cent. manganese, the line again is straight, for the reason, as we suspect, that there were either too few examples, or none at all, to determine points of that part of the curve. If continued below 0.20 per cent. by the method employed to work out the rest of the line, the curvature would be so great that apparently a subtraction from the strength would have to be made for the presence of a small amount of manganese. This paradox would be due to oxygen.

On the second page of his paper the author says: "The effect per unit of manganese seems to decrease as the percentage of this element increases. For instance, steels of 0.20 to 0.30 per cent.

Billiter street. The exchange has writing, reading and smoking rooms, refreshment and dining rooms, board and committee rooms, lavatories, exchange telegraph tape, telephones, and all conveniences. The general membership exceeds 1000. Change is held daily from 3.30 to 4 p.m. Engineers visiting London can obtain an order to visit the exchange from the secretary, Mr. A. T. Salisbury-Jones, 33 Old Broad street, E.C., or from a member of the committee.

The Chinese have not yet established any Government post offices. At the treaty ports the foreign consuls conduct their own post offices, but the masses of the people depend on "letter shops," by which the carriage of correspondence is conducted somewhat under the conditions of our American express companies. No stamps are used, but

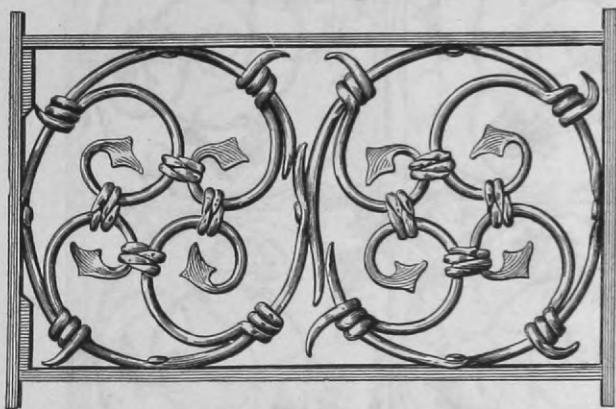


Fig. 26.—Detail of Modern Wrought Iron Railing.



Fig. 27.—Wrought-Iron Knocker of German Renaissance Pattern.

ARTISTIC WROUGHT IRON.

centage of oxygen in the steel, under working conditions that are as uniform as possible, is likely to vary inversely as that of the manganese, or perhaps, and more probably, it may bear even an inverse geometrical ratio to the manganese content. At all events, to follow the author's plan, the line representing the loss of strength due to oxygen is probably a curve. Plotted by itself the line would probably be straight; that is, the decrease in strength would be proportional to the increase in oxygen, but if the results were superposed on the percentages of manganese, they would give a curve, because the percentages of oxygen increase faster than those of manganese decrease. Were the oxygen line to be developed and added to the diagram, it would seem that the manganese line should then be straight. Due allowance for the effect of oxygen, therefore, would modify two features of the paper. It would increase the figure for the strength of pure iron from 38,000 to about 45,000 pounds per square inch, and it would straighten out the manganese curve.

The manganese line in the paper is curved between 0.50 and 0.20 per cent.

manganese show greater difference in ultimate strength than steels of 0.50 to 0.60 per cent. manganese, all other elements being the same." This behavior of the metal may be explained as the effect of oxygen, though if that should vary "all other elements" would, of course, no longer be the same.

The increase of strength due to manganese is apparently greatest between 0.20 to 0.30 per cent. because between those limits the removal of the oxygen is the fastest; that is to say, in following along a series of tests of heats of steel, running from 0.50 to 0.20 per cent. of manganese, the percentages of oxygen would be found to increase faster between 0.30 and 0.20 per cent. than elsewhere in the series. A furnace practice that with the same final additions of manganese gives proportions of manganese in the finished steel varying from 0.20 to 0.50 per cent. is almost certain to yield a product in which the oxygen will also vary greatly.

An Engineering Exchange has been established in London, in the premises of the London Shipping Exchange,

the "chop" or seal of the keeper of the shop is always placed on the envelope after its contents have been inspected by him.

Sir Thomas Sutherland, M. P., chairman of the P. & O. Company, at the half-yearly meeting of that steamship corporation in London recently, said that an analysis of the returns of all the great British shipping companies showed a melancholy record of bad trade and inadequate profits. The depression in shipping stocks is, however, more plainly exemplified by the Stock Exchange quotations, from which it appears that the average depreciation of these stocks is not less than 50 per cent.

The Bengal Iron & Steel Company of Burrakur, India, have just completed a contract for the supply of 10,000 tons of pig iron to the East Indian Railway Company, and a new contract has been made for a similar supply during the current year. At the works of the company there are now two blast furnaces producing 2500 tons of pig iron monthly.

The Rominger Worm Gear Cutting Machine.

In this machine the worm is cut from a revolving blank by a milling cutter carried by a table swinging about a center. The pitch of the thread produced upon the worm depends upon the relation between the speed of rotation of the blank and the speed at which the table swings. The shaft carrying the blank and the table are so connected that the speed of one can be properly regulated in respect to the speed of the other to produce a worm with thread of any desired degree of pitch. The spindle carrying the milling cutter is

friction as to make possible a most material reduction in the power required to drive them. This is proved by the elevators built by the Albro Clem Elevator Company of Philadelphia, who since the introduction of this machine, which is the invention of Geo. S. Rominger of Twenty-second and Master streets, Philadelphia, have been enabled to operate their elevators with at least 25 per cent. less power than would be required with cast gears or gears cut in the ordinary way.

Upon the base of the machine are mounted the bearings B for a shaft, C, which carries a head stock, D, to which is secured one end of the blank from which the worm is to be cut, the other

ranged to enter either of the series of equidistant openings in the face of the wheel, the bolt being thrust inward by the action of the spring and retracted by the action of the cam *w*.

In the guides I, Fig. 2, is placed a transverse slide, J, which can be moved to and fro in the same manner as the slide of a lathe. This slide carries a table, K, upon which is mounted a swing plate, L, also having guides, *a*, for a carriage, *b*, formed with bearings for a shaft, *c*, and for a second shaft, *d*, directly above the first. The forward end of the lower shaft carries a milling tool, *e*, while the upper shaft is provided with a pulley, *f*, for receiving a driving belt. The shafts are geared together

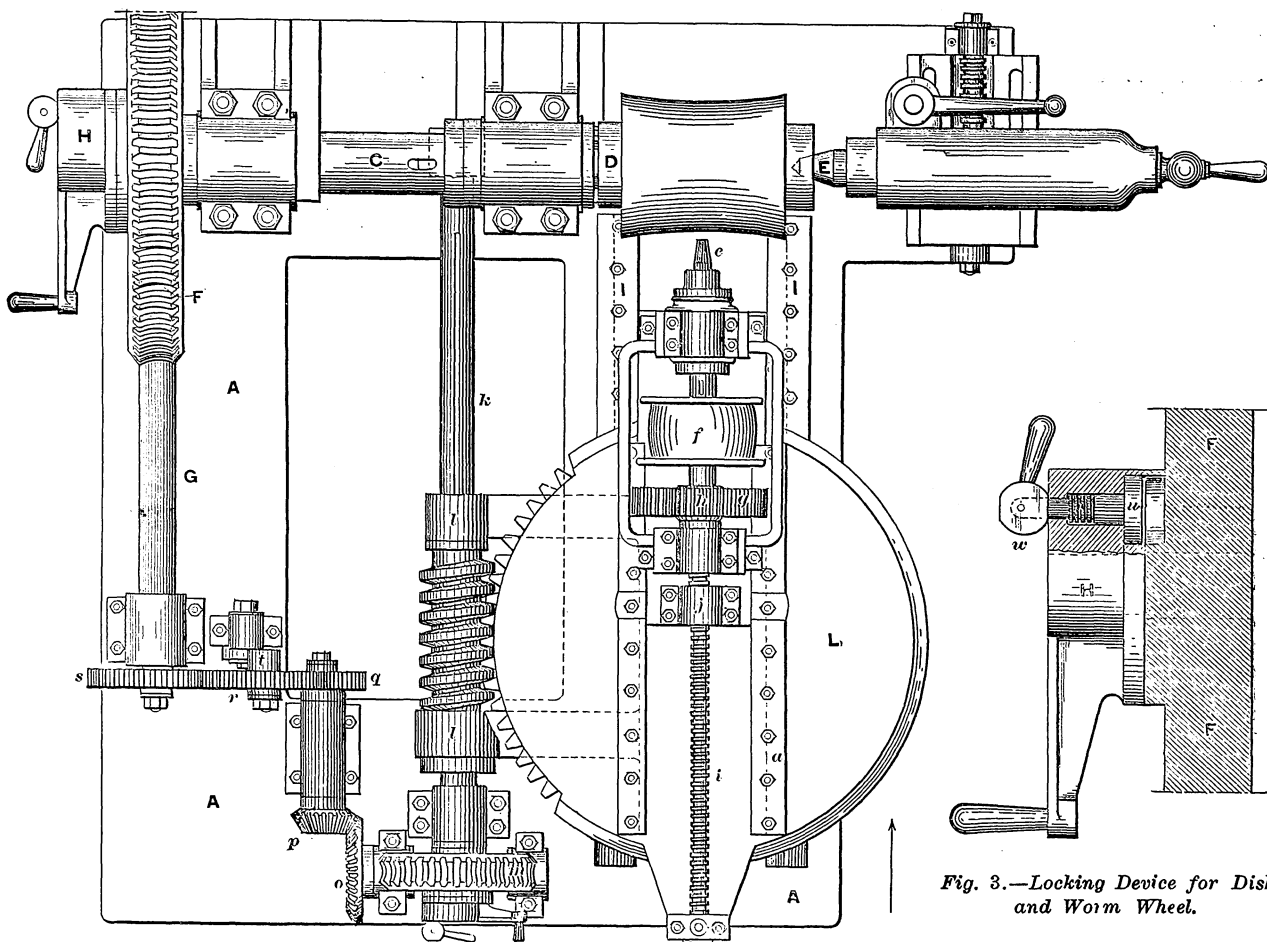


Fig. 1.—Plan View.

THE ROMINGER WORM GEAR CUTTING MACHINE.

mounted in a frame which can be adjusted in guides on the table so as to bring the cutter at any desired distance from the pivot about which the table swings.

Now, it is evident that if the worm cut by this method be formed into a milling cutter by cutting grooves parallel with its axis, it is possible by reversing the process to cut a worm gear into which that worm will fit perfectly. This is accomplished by substituting the worm cutter for the blank and by replacing the table by a gear blank having a radius equal to the distance from the pivot of the table to the milling cutter that formed the threads in the worm. The speeds of the worm cutter and gear blank then being properly arranged in relation to each other, the gear will be cut.

Worms and worm gears cut in accordance with this principle run with so little

end of the blank being mounted upon the tailstock E, which is similar to that of an ordinary lathe. At the other end of the shaft is a worm wheel, F, driven by a worm upon a transverse shaft, G, mounted in bearings upon the bed plate. The worm wheel is loose upon the shaft, but may be clutched to it by an outer clutch disk, H, which is secured to the shaft and can be adjusted to different circumferential positions in respect to the worm wheel. This disk is provided with means for locking it to the worm wheel at equidistant points—for instance, at every half turn, if a double-thread worm is to be produced; at every one-third of a turn if a three-threaded worm is to be produced, and so on, so that the cutting of the threads may be properly started at equidistant circumferential points on the blank. The locking of the disk H and the wheel F is effected by a spring bolt, *w*, Fig. 3, ar-

by means of the gears *g* *h*, as shown in Figs. 1 and 2. The carriage *b* is controlled by a screw, *i*, and nut, *j*, so that it can be moved to and fro on the swing plate, and thereby feed the milling tool toward or from the work.

When, therefore, the cylindrical blank from which the worm is to be produced is clamped between the head and tail stock, the swing plate L is so adjusted on the bed plate A that the axis of the plate is at precisely the same distance from the axis of the worm blank as will be the axis of the worm wheel with which that worm is intended to engage. And as the swing plate is caused to swing horizontally upon its axis while the milling cutter is forming the groove in the worm blank, it follows that the face of the worm being cut will be of exactly the same contour as the periphery of the wheel with which it is to engage.

Hence the thread or threads of the worm will be in mesh with the teeth of the worm wheel from end to end of the worm, and not only on a central point of the worm as when the latter is cylindrical instead of concave.

As stated previously, the pitch of the thread or threads produced upon the worm will depend upon the relation between the speed of rotation of the shaft C and the speed at which the table L swings. Therefore, these parts are so connected that their speeds may be in proper relation to each other. This is done by the following means: Upon the periphery of the swing plate are formed worm teeth, which may extend entirely

transversely operated, the speed of the plate in respect to that of the shaft being dependent upon the relative sizes of the spur wheels *q* and *s*, and provision is afforded for variation in the size of these two wheels by mounting the intermediate wheel *r* upon a slotted arm, *t*, adjustable on a bracket on the bed plate, so that whatever may be the size of the wheel *s* the wheel *r* can be adjusted so as to properly mesh with the same and with the wheel *q*.

The swinging plate is steadied in its movement by providing it with one or more downwardly projecting annular ribs, two of which are shown in Fig. 4, the peripheries of which fit snugly

Krupp and His Workmen.

The great majority of Americans have learned to couple the name of Krupp with the manufacture of great guns, while a few know of and appreciate the achievements of the firm in the production of various forms of merchant steel plates and track material. The exhibit at the fair will open the eyes of many to the high character and magnitude of the work done. Yet there is one part of the exhibit which has not escaped the attention of some and which, in some respects, is of considerable general interest. There is a model of what is

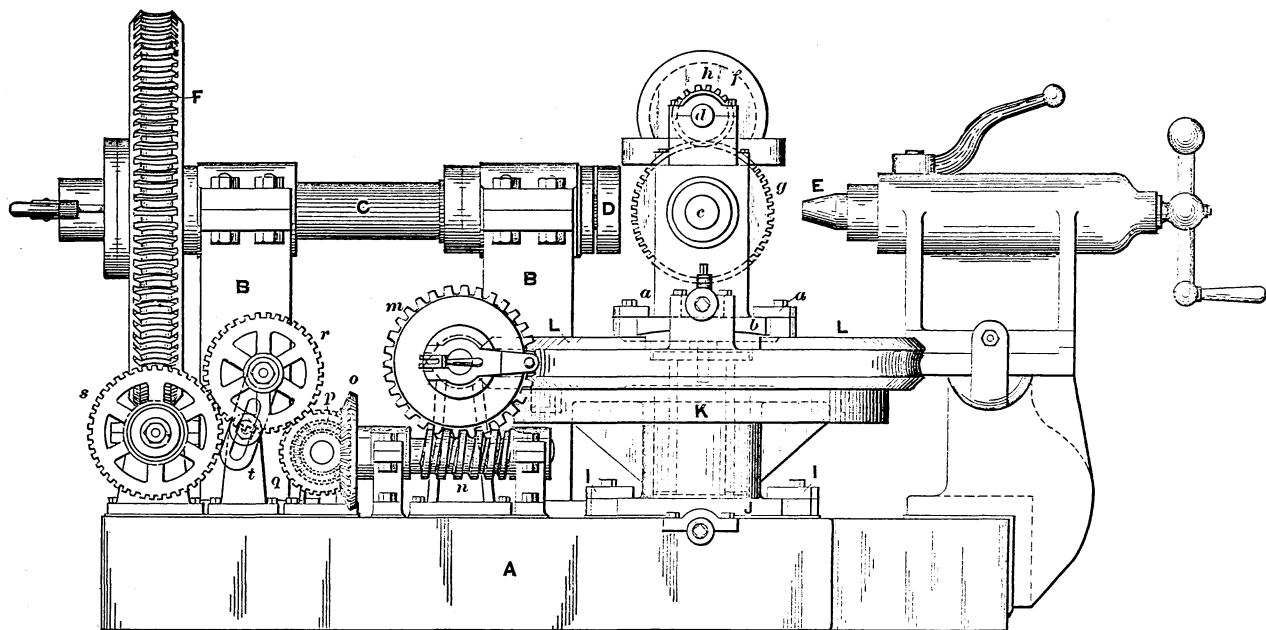


Fig. 2.—End View.

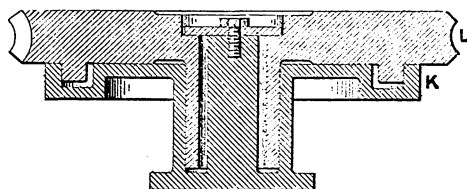


Fig. 4.—Vertical Section through Swinging Plate.

THE ROMINGER WORM GEAR CUTTING MACHINE.

around the plate or through any desired segment of its circumference, and with these teeth engages a worm splined upon a shaft, *k*, and confined longitudinally between bearings, *l*, on a bracket projecting from the table, so that as the table is moved to and fro the worm will be likewise moved on its shaft, and will therefore always remain properly in mesh with the teeth of the swing plate. The outer end of the shaft is provided with a worm wheel, *m*, which meshes with a worm, *n*, on a short transverse shaft mounted in bearings on the bed plate, this shaft having a bevel wheel, *o*, which meshes with a bevel pinion, *p*, on a shaft likewise adapted to a bearing on the bed plate, and provided with a spur wheel, *q*, which meshes with a like wheel, *r*, the latter meshing with a spur wheel, *s*, on the shaft G, which drives the worm of the shaft C.

It will therefore be seen that the shaft C and swing plate L will be simul-

against the walls of annular recesses in the table.

One of the most princely benefactions ever made by an individual is the Leland Stanford, Jr., University at Palo Alto, Cal., built and endowed by the lately deceased Senator Stanford in memory of his son, at a cost of \$20,000,000. The institution was opened in 1891 for the education of both sexes, and the founder had the satisfaction of seeing his scheme completed and in successful operation before his death. In his will he added \$10,000,000 to the funds of the university.

At a representative meeting of employers of labor recently held in Liverpool ten members were appointed to a joint committee of employers and employed, which is to organize a scheme for bringing about more friendly relations between the two classes.

called the "ancestral home," built in 1818, at the same time as the oldest workshop of the present plant, in which Alfred Krupp, the creator of the present plant, lived with his family for many years and which is still kept intact in its original form, serving as the office of the present proprietor, F. A. Krupp. His father left it as a monument instructive to his men, as showing what privations accompany the struggle for success. It is smaller than the quarters of his men to-day.

The recollection of the early days of his life seems to have lingered with Alfred Krupp, and with him and with his son a wise business policy has stimulated efforts to make the surroundings of their men as satisfactory as possible. There is an assumption of parental authority in a good many of them, which would probably defeat its good objects in this country by arousing, possibly, unreasonable opposition, in the face of the fact that it is coupled often with princely generosity. But, withal, the arrangements rest on a strictly business-like foundation, and are not tainted by any sickly sentimentality, nor is there about them any flavor of lordly patronage productive of constant irritation and disgust. We are indebted to A. Lauter, one of the representatives of the firm, for volumes which describe in detail the arrangements for the welfare of the firm, which are in charge of a special branch of the administration.

Founded in 1810, it was really not until the forties that the undertaking was of any consequence whatever. In

1832 ten workmen were employed. In 1843 the number of men employed by Krupp who were residents of Essen had risen to 99, and only went beyond 1000 in 1858 and 2000 in 1861, the population of the whole town being 20,766. In 1871 the town had a population of 51,840, of whom 8810 were Krupp workmen, the whole number of dwellings being 3322. While in 1840 an average of only 7.53 persons occupied a house, there were 15.5 souls under one roof on an average in 1891. The construction of company houses had begun at Alt-Westend in 1863, but it was not until 1871 that the problem became a matter for serious consideration. The rapid development of the plant had attracted a large working population with which local building activity had not kept pace. Uncomfortable quarters drove the men to groggeries and beer houses, which increased in number amazingly. The fact that the population has been drawn from very different sources led to frequent trouble, and demagogues began their work of creating unrest.

Heroic measures were called for, and in the years 1871 to 1873 not less than 2358 family dwellings were built. A number of considerations, probably valid at that time, but hardly so now, put the introduction of the cottage plan out of the question. Real estate was high, and it was deemed necessary that the men should not be living at too great a walking distance from the works. Then the scattering of the homes over too large an area would make the water supply too expensive. A number of colonies were established, each of them having its schools, churches, company stores, markets and parks. The following statement shows the number of houses and the number of dwellings, or suites of rooms, which they contain:

	Houses.	Suites of rooms.
Alt-Westend, 1863.....	8	144
New Westend, 1871.....	18	108
Nordhof, 1871.....	..	162
Baumhof, 1871.....	41	154
Schederhof, 1872.....	82	492
Schederhof Barracks, 1872..	70	280
Cronenberg, 1872-74.....	221	1,356

The last named may be taken as typical of the arrangements. The colony contains the following:

97 houses, each 6 suites of 2 rooms.
51 houses, each six suites, three of 2 rooms and 3 of 4 rooms.
80 houses, each 6 suites of 3 rooms.
2 houses, each 3 suites of 5 rooms.
2 houses, each 6 suites of 3 rooms.
3 houses, each 6 suites of 4 rooms.
6 double houses, 18 suites of 2 rooms each.
6 double houses, 36 suites of 3 rooms.
6 double houses, 18 suites of 4 rooms.

The company houses are rented only to employees, preference being given to those having long service with the firm. Boarders are allowed only when it is deemed advisable, the total number being only 256. The annual rental is \$15 to \$22.50 for two-room suites in the barracks, \$22.50 to \$27.50 in other two-room dwellings, \$30 to \$40.50 in three-room, \$45 to \$50 in four-room and \$52.50 to \$82.50 per annum in five-room suites, deducted semi-monthly from wages.

On July 1, 1892, the firm had 25,200 employees, whose families of 62,700 carried the total population up to 87,900. Of these there lived in their own houses 15,300; in houses owned by Krupp, 25,800; and in outside houses, 46,800.

The outlay for 3659 suites of rooms at

the Essen plant, and the income, were as follows:

	Marks.	Marks.
Cost of houses.....	11,042,451	
Real estate.....	1,213,624	
Total cost.....	12,256,075	
Income:		
Rents.....		484,675
Deduct repairs.....	112,878	
Deduct gas, water, repairs, &c.....	67,650	
Deduct taxes and insurance.....	48,000	
Expenses.....	228,328	
Balance.....	256,347	

On a capital outlay of roughly \$3,000,000 was realized \$62,575, or about 2.1 per cent., which is a low rate of interest even for the Continent. The figures are a little better for the 523 suites of rooms at outside works and mines. The cost was 1,742,335 marks, which yielded a gross rental of 67,045 marks, and a net revenue of 44,955 marks, or 2.58 per cent. on the investment.

In 1889 F. A. Krupp went a step further and set aside the sum of 500,000 marks as a loan fund, from which workmen or employees may borrow at 3 per cent. interest to build their own homes. The yearly income of the applicant must be less than 3000 marks, he must show three years' irreproachable service, must have served his time in the army, and must make a first payment of at least 300 marks out of his own means. The money borrowed must be repaid in semi-monthly installments so that the mortgage is extinguished in 25 years. The loan may be called at once if the property is transferred to another party, or if the borrower has been dismissed or leaves the employ of the firm voluntarily within the first ten years. Thus far 75 houses ranging in value from 1000 to 13,000 marks have been built under this arrangement.

As early as 1856 Krupp arranged for a common mess and barracks for unmarried men, and in 1884 made living at them obligatory upon all who are not skilled workmen, or who cannot show that they live with near relatives. The last barracks built at Freistadt was for the accommodation of 1200 men, but one of the wings has been altered for families because a large proportion of the unmarried men are sons of old workmen and live with their parents. The board costs 15 cents a day for persons under 16 years and 19.5 cents a day for older persons, exclusive of bread. The volume in question reports in detail the quantities and cost of food served for 100 persons, for the midday meal and supper, and thus constitutes an interesting budget. The statement is made that the firm loses money at the rates given unless the barracks are pretty full.

Company Stores.

A co-operative company which had got into trouble in 1868 was taken over by the firm. The main objects of the system are to place cheap and good articles at the service of the employees, and to watch, above all, that no adulterated goods are offered for sale. A strictly cash business is done, in order to encourage economy and keep the men from contracting the habit of borrowing. Since the beginning of 1890 the firm has arranged to return all profits on the store business to the purchasers. A pass-book is issued to every purchaser, in which all cash sales are entered. Before Christmas the profit is distributed pro rata. After the first

year's operations a profit of 5 per cent. on total sales was paid in cash to buyers. During the fiscal year 1890-91, 8641 employees of the Essen works and 2513 employed at outside establishments participated in this profit.

There are 15 stores in which groceries are sold and 9 for dry goods. Besides, there are shoemakers' shops, a mill and bakery, slaughter house and seven restaurants. Some idea of the magnitude of the business may be obtained from the following list of aggregate sales in 1890:

	Kg.
Wheat flour.....	934,094
Buckwheat flour.....	54,800
Beans.....	91,253
Pease.....	110,432
Lentils.....	17,873
Rice.....	111,861
Lard.....	112,995
Butter.....	111,771
Coffee.....	207,100
Prunes.....	69,680
Potatoes.....	963,214

The bakery produced 1,184,886 kg. of black bread, 584,108 kg. of rye bread, 233,523 kg. of wheat bread, 2,505,676 rolls and 1,117,245 "zwieback." During the same year the slaughter house sold 1335 beeves, 1343 calves, 4907 hogs, and 817 sheep. The sales of beer aggregated 1,424,539 liters, while the sales of wine amounted to 167,000 bottles.

Full tabular statements are given concerning the average prices at which the leading articles were sold from 1871 to 1890. As an example, the figures dealing with the latter year may be presented:

	Per 100 pounds.
Potatoes.....	65.85
Black bread.....	1.59
Beef, first quality.....	15.06
Beef, second quality.....	13.96
Veal, first quality.....	14.55
Veal, second quality.....	13.45
Mutton, first quality.....	15.12
Mutton, second quality.....	13.20
Pork.....	16.41
Lard.....	11.00
Butter, first quality.....	26.14
Wheat flour.....	3.30
White beans.....	2.73
Pease.....	2.99
Lentils.....	5.17
Rice.....	3.89
Java coffee.....	27.32
Salt.....	2.13
Prunes.....	5.75
Cube sugar.....	11.00

Since 1882 an ice factory has been in operation. During the period of May to October a 30-pound block is delivered daily for \$7 per season.

Most elaborate arrangements have been made by Krupp to provide for the proper sanitary condition of his men. There is a large hospital. The sick fund, a separate organization, pays 37 cents per day for the support of men, and lower rates for women and children, the firm paying the deficit. During the year 1890-91, with 15,918 persons employed, there were 1192 men and 575 women and children as patients, who remained in the hospital on an average 19.73 days, the hospital cost per workman being \$1.86. Provisions have also been made for hospitals for epidemic diseases.

Sick Funds, &c.

A sick and death fund was established as early as 1853. The passage of the law of June 15, 1883, made a reorganization necessary, and two distinct associations were created, one for the support of the sick and one for pensioning the old and disabled. The sick fund is administered even more liberally than the provisions of the

famous German law called for. In 1890, with 15,572 members, the dues were 275,496.44 marks. The firm contributed their legal third, or 137,682.91 marks, and 13,374.21 marks were received from outside patients. The outlays included 50,777.18 marks for medical attendance, 63,658.38 marks for drugs, 172,503.31 marks for sick money to members, and 32,851.63 marks to their families. The sums paid to hospitals were 31,994.35 marks; 15,006 marks were laid out for funerals, and 60,000 marks were carried to surplus fund, bringing the total up to 435,435 marks.

Some of the figures submitted by Krupp concerning the pension fund are interesting. The demands upon it under the new law seem to be growing

cash 2,208,851.18 marks. The membership dues were 211,122.47 marks, and the Krupp contribution was 105,561.30 marks. Initiation fees amounted to 21,219.28 marks and interest to 91,196.18 marks. Other sources of income brought the total 440,233.53 marks. The expenditures, including 240,810.77 pension payments, footed up to 249,160.57 marks, leaving a balance to carry to surplus of 191,072.96 marks.

In 1890 E. A. Krupp contributed 500,000 marks to a pension fund for officers of the firm, and provisions have also been made for accident insurance for officers and the better paid employees.

In 1887 he subscribed 1,000,000 marks as a fund the income of which is to be used for aid to those employees

fees and annual dues. Water and gas are furnished to residents of the Krupp houses at cost, the figures being extremely low.

Machine for Breaking Pig Iron and Loading It Into Cars.

In *The Iron Age* of June 8 we presented some of the most important paragraphs from the inaugural address of President E. Windsor Richards of the Iron and Steel Institute. He briefly described an apparatus "devised for dealing with the removal and breaking up of pig iron by mechanical means, to clear the beds quickly, to reduce the cost of labor, and, above all, to dispense with a difficult and exacting class

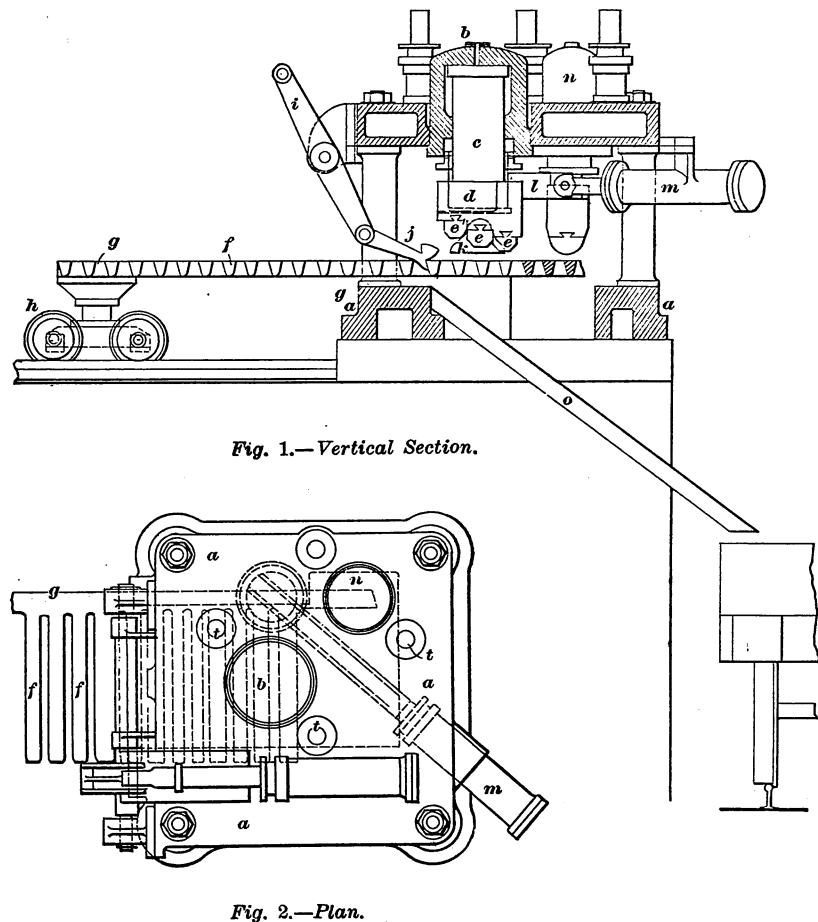


Fig. 1.—Vertical Section.

Fig. 2.—Plan.

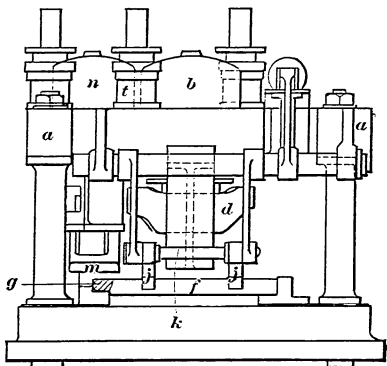


Fig. 3.—View of Feeding End.

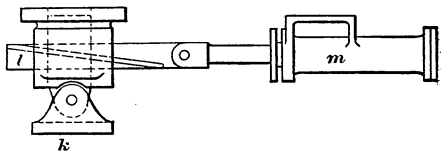


Fig. 4.—Detail of Clamping Device.

MACHINE FOR BREAKING PIG IRON AND LOADING IT INTO CARS.

very rapidly. In 1885 110 men drew 46,052.52 marks, 126 widows were paid 33,655.19 and four orphans 189.92 marks, a total of 79,887.63 marks. In 1890 312 men received 144,053.62 marks, 357 widows drew 93,133.96 marks, 35 orphans 1,687.19 marks, while 15 men drew 1936 marks in partial pensions, carrying the total up to 240,810.77 marks, or roughly \$59,000. No idea can yet be formulated concerning the average duration of the pension. Recently three Krupp pensioners have died who had lived 18, 20 and 13 years respectively after being retired from active work.

Lately additional acts have increased the scope and the payments under the pensioning act, and Krupp has accordingly voluntarily increased his annual contribution to the fund from the legal third to one-half, which will carry it to about \$60,000 a year. In 1890 the present fund possessed in securities and

of the works who have suffered misfortune and whose case is not reached under the present laws.

A sum of 500,000 marks has been donated as a fund for the benefit of the citizens of Essen. The capital will probably be invested in workmen's houses.

In 1877 a life insurance scheme was started and which is prospering.

Comprehensive work has also been done in establishing common schools, which now have an attendance of 1100 scholars, in promoting industrial schools for grown girls, and for teaching household duties to girls. An apprentice system for boys has been long a feature of the works, the principal object being to train good carpenters and masons. Scholarships to the amount of 12,000 marks annually are granted, for aid in attendance at technical colleges. A club house has been built for the officers of the company, who pay low initiation

of workmen, which at any moment has the power, and sometimes exercises it, of bringing the works to a stop."

We now have the privilege of presenting a more detailed description of the construction and operation of the machine, our data being obtained from letters patent recently issued to E. P. Martin of Dowlais, and Enoch James of Cardiff, England. The invention consists, first, in a specially designed machine for separating from the sow and otherwise breaking a series of pigs raised together, as one mass, from the casting bed by a crane. Provision is also made for loading the pig iron thus broken into cars. The breaking machine is actuated by hydraulic power. Carried in a frame bridging over a space between two walls is a ram cylinder, the plunger of which works through the bottom of the cylinder, and is fitted at its lower end with a head somewhat after the manner of the hammer head of

a steam hammer. At that end of the machine at which the sow and adhering pigs are fed for breaking is a pair of arms connected to a rocking shaft. These arms are fitted at their lower ends with pawls for advancing the mass to the ram. When sufficiently advanced, the mass is clamped by a block operated by a wedge-shaped lever actuated by a separate ram. The plunger is then lowered and as many pigs as the head has capacity for are thereby snapped off from the sow and also severed at or about midway. The pig-breaking ram plunger is then withdrawn and the clamping block raised. By the arms and pawls mentioned the mass is again advanced and the process of clamping and breaking repeated.

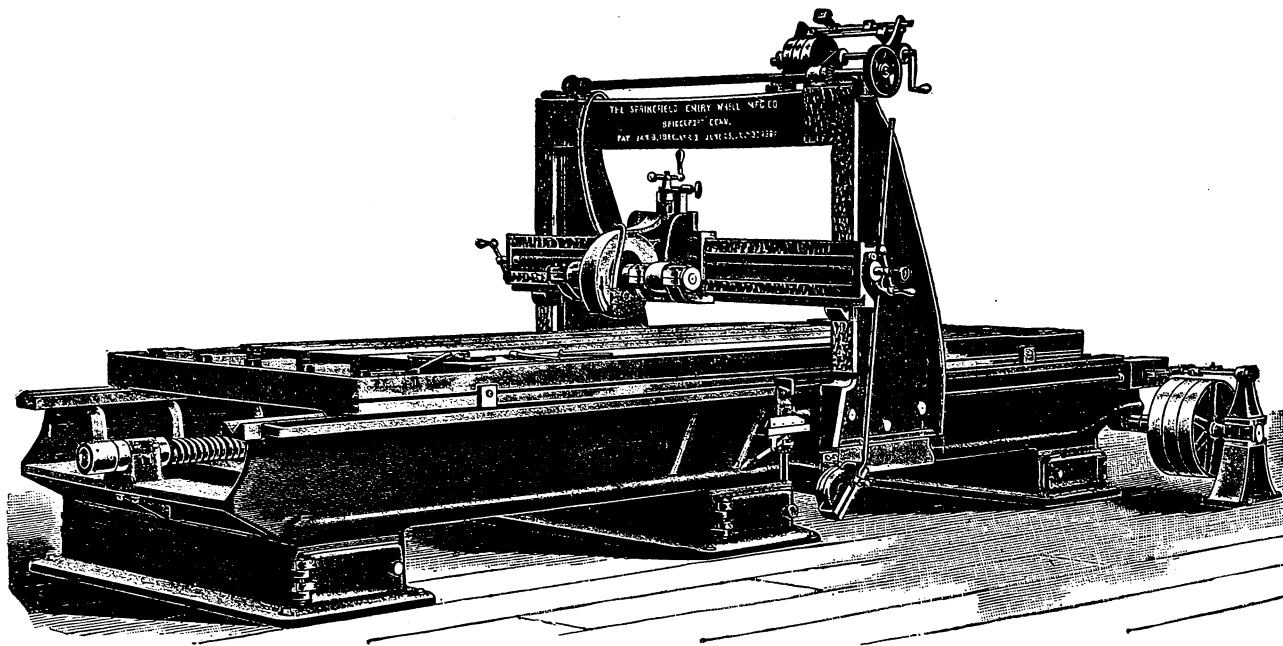
Simultaneously with the second and subsequent downstrokes of the pig-breaking plunger, the plunger of a ram employed for breaking the sow descends upon that part of the latter from which the pigs have been sep-

is advanced to the requisite extent to commence breaking, it is clamped by the clamping block *k*, Figs. 1 and 4, which is lowered on to the sow by means of the wedge-shaped arm *l* connected to the plunger of the ram cylinder *m* by which plunger the arm *l* is thrust forward into an inclined slot made in the head to which the block *k* is connected. The mass of iron having been clamped, the plunger of the ram cylinder *b* is then lowered and by the hammer heads *e* three pigs are successively snapped off from the sow and also severed at or about midway. The plunger is then drawn up and the mass of iron is released by raising the clamping block *k*. The levers *i* are then set in operation to feed the mass of iron farther forward and the operations of clamping and pig breaking are repeated. Simultaneously, or nearly so, with the second and subsequent down strokes of the plunger *c*, the ram working in the cylinder *n*, Figs.

ernment, proposes that the bridge should span the straits about half way between Constantinople and the Black Sea, where the Bosphorus narrows considerably. This would involve a structure at least 8640 feet long.

The Springfield Surface Grinder.

Although the surface grinder which we illustrate was designed for grinding boiler fronts, it is adapted for grinding any wide surfaces. The machine is built on the same general plan of the common iron planer except in the manner of propelling the platen, which is done by a worm and worm gear connected to a large screw running through the center of the bed and connected to the platen by a long clamp nut, which gives a steady movement to the carriage and prevents any vibration that would impart a wavy look to the work. The worm and gear run in an oil tank,



THE SPRINGFIELD SURFACE GRINDER.

arated by the immediately previous down stroke of the pig-breaking plunger. This part of the sow is accordingly broken into lengths approximately to that of one-half of a pig. These operations are repeated until the sow and the whole series of pigs are broken up. The broken pig iron is fed to a chute formed of heavy rails with longitudinal openings for the sand to fall through and which conveys the iron to the car or wagon.

Supported in a suitable frame, *a*, is a ram cylinder, *b*, the plunger *c* of which is furnished with a cross-head, *d*, fitted with three breaking hammer-heads, *e*. The pigs *f* and sow *g*, raised as one mass from the casting bed, are supported at one end on a trolley, *h*, Fig. 1, and are directed to pass on bearers to the hammers *e*.

The mass is fed to the hammers by the levers *i*, carried on a rocking shaft, the levers being connected at their lower ends to a shaft carrying pawls *j*. The lever *i* is connected at the upper end by a link to the plunger of a ram cylinder, by means of which it is operated to feed the mass forward to be broken. When, by the operation of this plunger, the levers and the pawls, the mass of iron

1, 2 and 3, is lowered on to the sow *g* and that part thereof from which the pigs were removed in the immediately previous down stroke of the ram *c* is broken up by the hammer head into lengths approximating to that of one-half of a pig. The return or up-strokes of all the rams are obtained as usual by the provision of constant pressure rams. These operations are repeated until the sow and the whole series of pigs are broken up. The pig iron thus broken up descends on to a chute, *o*, by which it is delivered into wagons drawn up on rails in a hauling way, as seen in Fig. 1. As illustrated in the drawings, the chute *o* is fixed. It may, however, be hinged at the upper end if desired, and be designed to be moved by hydraulic or other power so as to alter the angle of inclination at will, and to be worked backward and forward over the wagons.

The project of bridging the Bosphorus with the view of connecting Turkey in Asia and Asia Minor by rail, which has for long been brought forward intermittently, is again on the tapis. The latest scheme, which is now being considered by the Turkish Gov-

which is perfectly tight and keeps the wearing parts continually well oiled. The bed is cast with a solid bottom which serves as a tank to hold the water, which is conveyed to the work by means of a centrifugal pump which supplies a large flow of water to prevent the heating and expanding of the work while grinding. The crosshead is raised and lowered by a belt from the countershaft.

The machine, which is built by the Springfield Emery Wheel Company of Bridgeport, Conn., measures 18½ feet over all, is 8½ feet wide, and is 2½ feet from the floor to the top of the platen. The distance between the uprights is 5½ feet, the length of the platen is 14 feet, and its width 5 feet 1 inch. The machine will grind work 10 feet long, 5½ feet wide and 20 inches high. The emery wheel is 14 inches in diameter by 2 inches face. The emery-wheel spindle is 1½ inches in diameter, 32 inches long and has four adjustable bearings, with pulley 5 x 3½ inches each side of the emery wheel, to secure a steady and equal draft from the belts. This machine is supplied with countershaft, drum for the emery-wheel belt, and an automatic idler to maintain an equal

tension on the belts when the crosshead is lowered or raised. The diameter of the drum is 2 feet $\frac{1}{4}$ inch, length of drum 6 feet 11 $\frac{1}{2}$ inches. The weight of the machine is 25,000 pounds.

Friction Clutch Pulley.

This friction clutch pulley worked so satisfactorily in the shops of the S. A. Woods Machine Company of South Boston, Mass., that it is now being applied to all machines made by them. The hub of the pulley has outwardly extending radial arms to form bearings for short rock shafts provided with projections to actuate expansively yielding friction segments in order that they may engage the interior overhanging flange of a wheel or pulley and secure their rotation together when desired.

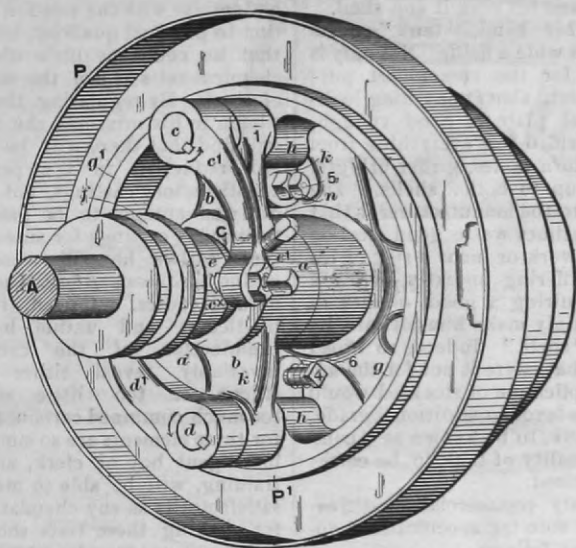
The hub *a* of the main shaft *A* is formed with rigid arms, *b*, having bearings for short rock shafts, *c d*, to the outer ends of which are keyed the arms *e' d'*. These arms have like friction regulat

and also to compensate for wear. The friction segments are normally drawn toward each other and from contact with the loose pulley by the springs *6*, the tension of the springs being regulated by the set nuts on the threaded ends of the guide bolts.

As shown in the drawing, the pulley *P* is loose on the shaft *A*.

When the cone is pushed toward the pulley *P* the adjusting screws *e* ride up on the conical surface, turning the arms *e' d'* and their attached rock shafts in the direction of the arrows, the projecting pins form separating devices, and at such time acting upon the ends of the segments *g g'* to force them apart against the action of the springs *6*, thus pressing the segments tightly against the interior of the flange *P'*, and causing the latter to rotate with the hub and shaft *A* provided the hub or pulley is being driven positively, but in case the shaft *A* is being driven positively the shaft will rotate the hub or pulley.

The cone *C* is formed with a cylindrical portion, *c'*, so that when the



FRICION CLUTCH PULLEY.

ing devices, shown as a screw, *e*, having a set nut, *e'*. The inner end of each screw bears on a cone, *C*, of usual construction, having an annular groove, *f*, to receive the yoke of a clutch lever, whereby the cone may be moved longitudinally on the shaft. The inner ends of the rock shafts act as supports for the ends of two segments, *g*, having at their ends ears, *k*, which are recessed to receive the shafts. The ears of adjacent segments are normally drawn toward each other by spiral springs, *6*, to effect the contraction of the segments, the springs being guided by the bolts *4 5*. The rock shafts have suitable projections, made in the form of pins, to act in the nature of a cam against the adjacent ends of the segments and cause their separation and expansion, so that they, normally of a less diameter externally than the flanged part of the pulley surrounding them, may, by their separation and slight flexure, be made to fit snugly the interior of the flange. These rock shafts with their projections constitute cam shafts. By turning the adjusting devices *e* in one or the other direction, the amount of rotation of the short rock shafts is increased or diminished, to increase or diminish the friction of the segments upon the pulley,

plates are fully pressed out against the pulley, as described, the bearing screws will rest upon the cylindrical portion and maintain the segments and pulley in operative contact. When the cone is withdrawn the various parts will return to their normal condition, under the action of the springs *6*.

THE WEEK.

Mining is depressed in Scotland, the North of England and Yorkshire, a large number of mines being quite idle, and many collieries working short time.

Camels are coming into use in large numbers in connection with the mining industries of South Africa, as they are found to be impervious to the insects and diseases which prove fatal to horses and bullocks in that country. In Australia, too, the camel is fast superseding other draft animals in the barren deserts of the interior.

The president of the British Institute of Mining Engineers, at a recent meeting of that body, stated that over \$730,000,000 was invested in British mines, exclusive of the rolling stock required

to convey the produce to its destination. He also estimated that 3,000,000 persons in the United Kingdom were directly dependent upon the mining industry for a livelihood.

In view of the threatened dearth of fodder in Europe, the French Academy of Sciences recommends utilizing the leaves of the grape vine for this purpose. Cattle eat them, either fresh or dry, with avidity, and they are stated to be excellent food. It is calculated that French vineyards can provide in this manner food equal to more than 800,000 tons of hay.

The Italian Government has approved of a project for the enlargement of the port and construction of new docks at Palermo, which will make the Sicilian capital one of the most important seaports of the Mediterranean.

A "Society for Promotion of the Atmospheric Purity of Cleveland" is an association which has been formed to suppress the smoke nuisance in that city.

The closing down of all the Chilean mines may result from the fall in price of silver. The situation has caused much excitement among those interested in the mining industry of Chili.

Electric traction is likely to get a foothold in the streets of San Francisco, Cal.

Returns from the Bureau of Statistics show that imports of merchandise into the United States during the year ended May 31, 1893, exceeded exports to foreign countries by \$87,627,444.

A strong feeling of astonishment and disapproval exists throughout the country at what is regarded as the unwarrantable leniency of Governor Altgeld in pardoning three Chicago anarchists condemned to imprisonment for the Haymarket massacre of May 4, 1886.

China protests vigorously against the enforcement of the Geary act as derogatory to her dignity and disturbing to the friendly relations existing with the United States. The Government of the Empire has officially requested a reconsideration of the obnoxious law.

Chili has recently received her newest and finest cruiser, the "Capitan Prat." The vessel was built in France, and is of 6900 tons displacement. She carries four 9 $\frac{1}{2}$ -inch and eight 4 $\frac{1}{2}$ -inch Cavet guns and bears a water-line belt of 11 $\frac{1}{2}$ inches of armor, while her ascertained speed is 19 knots an hour.

The "Campania" in her last westward voyage broke the record for the best day's run, accomplishing 548 miles in 24 hours.

Insurance companies report unusual difficulty in collecting balances, and July statements promise to exhibit an enormous amount of premiums uncollected. Fire insurance corporations thus find their margin of cash in hand for the payment of losses uncomfortably narrow.

United States Consul General Wallaoe of Melbourne reports the great success of Australian hard woods for street paving. The "jarrah" and "karri," both indigenous to Australia, are used in the most frequented roadways of the principal cities, and are found to give the best results as paving material.

The prolonged drought in Europe has at last broken up, and much-needed rain is reported to have fallen. Its effects, however, will be serious on the

year's crop returns of Great Britain, Germany, Austria, Italy and France; in all of which countries scarcity in many kinds of agricultural produce has occurred.

The sardine fishery of Brittany employs 2500 boats manned by 15,000 men. Along the coast are established 150 canning factories, which give work to about 12,000 persons, principally women, the total annual expenditure for labor, material, &c., reaching nearly \$4,000,000.

Consul-General Hess of Constantinople is of the opinion that a favorable opportunity for the introduction of improved American milling machinery into Turkey is offered by the recent abolition of the 8 per cent. import duty hitherto levied on wheat and flour at Turkish ports.

The cultivation of flax in the United States is recommended as a promising industry by our commercial agent at Dunfermline, Scotland.

The late landslide in Norway extended for 7 miles, carrying away 40 farms and causing the death of 113 persons and many hundreds of cattle.

A Washington dispatch states that the Ordnance Department of the Navy has prepared advertisements for nearly 1,500,000 pounds of steel forgings to be used in the construction of 4, 5, 8 and 12 inch rifled guns.

The interest created in our new men-of-war has stimulated the formation of further battalions of naval militia. Several States are now contemplating their establishment. At present over 2000 officers and men are enrolled.

The Austrian Government are content to pay the piper to a pretty tune for the purpose of "encouraging home industries." Thirty-seven dollars and ninety-two cents per ton for steel rails is the price which they have agreed upon, and to get even this they have had to place the whole of their requirements with native works for the next five years, meaning from 100,000 to 150,000 tons.

State employment of convicts in road-making, which has been tried in New York State, is very generally approved and recommended for adoption as a step toward obtaining better country roads, and also because this occupation will not compete with free labor, as is the case with other prison industries.

The production and export of manganese iron ore in the Russian Caucasus are steadily increasing, and will no doubt assume large proportions when the new railway, now nearly completed, is opened for traffic. The Russian Government has shown great interest in the development of this industry, and is materially assisting its encouragement by building roads to make communication with the mines more easy. The exports of ore had increased from 48,653 tons in 1888 to 162,290 tons in 1892.

A movement is on foot in England to have all iron and steel manufactured in that country regularly stamped as of British manufacture. The proposal is stated to have been heartily taken up by the British Iron Trade Association, and some hundreds of manufacturers have intimated their willingness to so mark their goods whenever possible. The idea is to obviate the mistakes and loss arising in the foreign trade from imitation of trade marks by foreign competitors.

CORRESPONDENCE.

The Classification of Steel Plates.

To the Editor: The existing classification of steel plates is, of course, a survival of the iron age in plates, and in my judgment is faulty, in that it subdivides the high grades once too often, while insufficiently classifying the lower grades. It is also incomplete and unsatisfactory in not being backed by a standard specification.

I object to the grade and term "flange," and would like to see it suppressed, and a new grade, to be known as "ship," to be inserted between "tank" and "shell." My objection to the term "flange" is that it conveys a false idea—viz., that steel of lower grades cannot be depended upon for flanging, whereas steel which will not flange reliably should never be put into a boiler, and therefore should be classed lower than shell. It is certainly true that steel may be safely used in boiler shells which should not go into a fire box. This justifies the classification of "fire box," but I see no room for a legitimate grade between it and shell.

On the other hand, "tank" covers altogether too wide a field. Not only is it purchased for the commonest purposes, for which almost anything looking like a steel plate is good enough, but it is specified for everything from that—frogs, turn-tables, girder bridges, ships—right up to boiler shells. The consequence to the manufacturer is that he must oftentimes waste good steel on unimportant work or incur a risk of his reputation suffering unjustly, while a customer requiring a good quality of "tank" can only make himself safe by purchasing "shell." Indeed, so broad is this field that, were it not for the additional complication of stocks, I would be inclined to favor an additional grade, lower than tank, to be known as "common," the quality of tank to be correspondingly raised.

For ordinary commercial classification I should vote for specifications approximately as follows:

	Tank.	Ship.	Shell.	Fire box.
Tensile test, longitudinal coupon.....	Limit, 75,000	55,000 to 65,000	55,000 to 65,000	55,000 to 80,000.
Elongation in 8 inch longitudinal coupon, per cent.....		20	22½	25
Bending test, longitudinal coupon.....		Flat.	Flat.	Flat.
Bending test, transverse coupon.....		Over 1 in. diam.	Over ½ in. diam.	Flat.
Phosphorus limit.....	0.15	0.10	0.08	0.045
Sulphur limit.....			0.065	0.05
Surface inspection.....	Easy.	Careful.	Close.	Rigid.

Of course, under any specifications, purchasers of plates, like purchasers of rails, will be influenced largely by the reputation of the mill, and much will depend upon the nature of the inspection for mechanical defects, which cannot be accurately specified. Still, a standard specification for each grade would do much to clear up existing uncertainties, and, I think, would be welcomed by both manufacturer and consumer.

W. F. MATTES.

PUEBLO, COL., June 20.

Chemical Tests in Foundry Practice.

To the Editor: The importance of a knowledge of the composition of foundry irons and castings to the foundryman has been thoroughly discussed during the last few years, and yet the use of chemical tests in foundry

practice is still only in its infancy in this country. It is a fact that the foundrymen in the West are considerably ahead of those in the East, and the Western Foundrymen's Association at its recent meeting not only acknowledged that the chemical laboratory is a great help, but an indispensable adjunct to any well appointed foundry, and it was proposed that the association should support a laboratory for the analysis of irons and experimenting with mixtures. At the meeting held later by the Eastern Foundrymen's Association, the author of a paper seems to entertain a rather skeptical opinion about the explanation afforded by chemical analysis on the causes of hardness and brittleness of castings. Though attention has been frequently called to the fact that grading by fracture will not determine composition of iron, the rule of thumb practice is still prevalent in almost every foundry in this section of the country. The reason that the foundryman is still groping his way in the dark ages of metallurgy is his lack of knowledge of the influence of the five elements which determine the quality of irons and castings. For were he familiar with the relation of composition to physical qualities, he would find that he could as little dispense with chemical tests as can the manufacturer of steel. By regulating the amount of silicon in his mixtures the foundryman will find that there will be a considerable reduction in the percentage of unsatisfactory castings, not to mention other advantages to be gained, and by testing his castings for silicon and combined carbon he will cease to ascribe undue hardness and brittleness to supernatural causes. Indeed, in cases of brittleness and undue hardness an examination of the castings will invariably reveal either too much silicon or too little silicon and too much combined carbon, and the tests for these elements are so simple that any intelligent boy or clerk, after a short training, will be able to make them as satisfactorily as any chemist. Facilities for making these tests should not be lacking at any foundry when it is desired

not to trust to chance in the purchase of irons, in making the mixtures, or for ascertaining the causes of unsatisfactory castings. As the apparatus required for the usual chemical tests of foundry irons and castings can be purchased for \$200, the question of cost will be no bar for abandoning the now prevalent rule of thumb practice in grading foundry irons. Yours truly,

WM. MOLIN.

NEW YORK, June 26.

Co-operative farming is greatly in vogue in Denmark. Over 1000 farms are conducted on this principle and are said to be very flourishing.

Stocks of wheat in the United States last week were returned as 66,376,000 bushels, against 26,006,000 bushels held in the corresponding week of last year.

The Iron Age

New York, Thursday, July 6, 1893.

DAVID WILLIAMS, - - PUBLISHER AND PROPRIETOR.
CHAS. KIRCHHOFF, - - EDITOR.
GEO. W. COPE, - - ASSOCIATE EDITOR, CHICAGO.
RICHARD R. WILLIAMS, - HARDWARE EDITOR.
JOHN S. KING, - - - BUSINESS MANAGER.

The Relations Between the Production of Silver and Lead.

There is something bordering on the ludicrous in the way in which the Rocky Mountain silver mines are working away to create sympathy with their lot. Columns of scarce dispatches have appeared in the public prints. Mines and reduction works are closed down right and left, just before the National holiday, but we do not expect to be advised how many will start after a week's rest. The usual prodigality in figures is displayed in regard to the number of men employed and the sums of money involved. We have grown accustomed to wild statements of this kind. There never is a strike or a suspension of work which does not make anywhere from two to ten times as many men idle as were employed before the enthusiastic local reporter interviews the parties in interest. A liberal discount should generally be applied to statements of this kind, and there is every reason to believe that in this particular case the allowance should be larger than usual. There is really a good deal of occasion for the scare, and the sudden collapse of silver will undoubtedly very seriously affect many communities in the Rocky Mountain States and Territories. But the situation is not by any means as bad as it is made to appear. Through the passage of the Sherman act the silver-mining interests have enjoyed the privilege of unloading nearly the whole of their product on the Government. Without that comfortable arrangement the white metal would probably have reached present quotations long before this time. It is not unnatural that its continuance should be desired and that every means should be employed to retain present advantages. The country at large will, however, not be willing to sacrifice interests incomparably larger.

One branch of the metal trade is deeply concerned in the outcome of the present crisis, and that is the lead trade. The total production of lead in the United States in 1892 was 213,262 net tons, according to the statistics of the United States Geological Survey. Of this quantity 31,678 tons was soft lead produced in Missouri, Kansas and Wisconsin, which will not be affected sensibly by any fluctuations in silver.

The balance of 181,584 net tons is desilverized lead, the product almost exclusively of silver-lead ores. Of this, 12,874 tons was Mexican base bullion, refined in bond and exported, leaving

168,710 net tons obtained by refining and desilverizing metal obtained from smelting argentiferous lead ores in the United States. Of this, 26,734 tons was lead derived from the treatment of Mexican and Canadian ores imported, leaving 141,976 tons as the product from silver-lead ores mined in the Rocky Mountain States and Territories.

During the last few years there has always been a relative scarcity of lead ores. The smelters must have a certain percentage of lead in their smelting mixtures in order to "cover" the silver. If there is not enough the losses of the precious metal become too heavy. The large offerings of "dry" ores—that is, ores which contain little or no lead, but only gold and silver, have forced smelters to compete eagerly for plumbiferous material. A redundant production of silver ore has encouraged the mining of lead ores often very low in silver. It naturally follows that a cutting down of the mining of dry silver ores must lower relatively the prices offered for lead ores and thus put pressure upon the Rocky Mountain lead mines. In some districts, notably the Cœur d'Alene, the ores carry also notable quantities of silver, and then, too, the production will be adversely affected.

It looks as though the heavy fall in silver must have an important effect in reducing the quantity of lead produced in the United States and in lessening the quantities imported from Mexico. To some extent this may be counteracted by the receipts of ore from the Slocan and Kootenai districts in Canada. But if the consumption should at all rally from the present depressed condition, a scarcity of lead would probably develop, reflected in higher prices, and the retention in this country of the increasing quantities of lead obtained from desilverizing Mexican base bullion. It seems likely that the supply of lead will be very considerably affected during the balance of the year.

Chicago's Two Millions.

The claim is made by the Chicago newspapers that their new city directory, just completed, indicates a population of 2,000,000, if not more, within the city limits. The directory contains over 500,000 names, and the usual proportion in cities of such names to population is 1 to 4. This seems incredible, because it almost doubles the population within three years, or from the taking of the last United States census. Yet it is possible. All things are possible with Chicago. It is the phenomenal city of the world. Its officially recorded growth surpasses anything before known. This estimate may be reasonably correct. During the past year or two there has been tremendous growth in the manufacturing interests of Chicago. New manufacturing suburbs, within the city limits, have sprung up and grown at a very rapid rate, while the

population of the built-up portion of the city has also increased visibly. It has been the subject of unceasing remark that the expansion of large office buildings barely kept pace with the demand for office accommodations, and an idle or tenantless store on any business thoroughfare was unknown. Advances in rents found somebody always willing to pay them. The World's Fair was responsible for some of this, of course, but not for all of it. Growth of population evidently was the great sustaining force. A city of two millions is a city to be proud of. We hope that the figures are correct when put to a stronger test than the estimate based on the directory.

United States Trade with Guatemala.

A valuable report, of interest especially to merchants and manufacturers of this country, is that of Consul-General Kimberly of Guatemala. It is shown that while the importations to Central America amount to \$20,000,000 or \$25,000,000 in value, only one-sixth of this goes to the United States. This is in the face of the fact that this country is more advantageously situated and that the goods it produces suitable for that market are superior in every way to those sold by European houses. The reasons for this discrimination, the kind and quality of articles that would find a market in Guatemala, and the remedy, are points discussed in the report.

"In the first place, it is necessary to study the ways and manners of our successful competitors or rivals thoroughly, and then go one better on them." Most of the existing large foreign houses in Guatemala are the outgrowth of an agency or branch from a larger European house, started by a junior partner or trusted employee. Others have been started by men sent out by the parent house as clerks, and who established themselves in business. Others, after having accumulated a modest fortune in Guatemala, have returned to their native country and established themselves as commission merchants.

These methods have produced two results of the utmost importance: There is an intimate relationship between the manufacturer and the seller of his goods and the former is perfectly familiar with the kind and grade of articles required. Knowing the wants of his customers, either through personal experience or the reports of his salesmen, he makes no mistake as to the kind and grade of an article that will sell, nor does he blunder by attempting to force the sale of an undesired article. He humors the whims and prejudices of his customers. The second result, due primarily to the mutual confidence existing between the maker and the seller of the article, has been the granting of longer credits by the European houses than by those of this country. That the latter could not have been caused by apprehension of the financial stand-

ing or credit of the merchants is shown by the statement that "business failures are exceedingly rare, and fraudulent business failures are unknown here." The laws are such that one who has failed in business must prove to the legal authority that he has fully paid off all previous liability before he can resume.

Another cause for refusal to buy American goods has been "bad packing." Although merchants have repeatedly given explicit directions as to how packing should be done, their instructions have been disregarded, and the goods have been received in imperfect condition in consequence. To show that the packing should be thoroughly well done, we quote the following:

The box leaves the Pacific Mail wharf in New York and is loaded from the Pacific Mail steamers at Colon, on the Atlantic side, on a lighter; from the lighter it goes to the wharf, to the Panama Railroad; on the Pacific Ocean side, from wharf to lighter again, and from lighter to the steamer of the Pacific Mail Company. These goods are transported to ports on the Pacific Ocean side. After about eight or ten days the box arrives at San José de Guatemala harbor, is once more put on a lighter to the wharf of the Sa Compañía de Agencias; from the wharf to the railroad, and from the railroad to the custom house, which is rather small for the amount of business done there, and boxes are not handled with gloves. Taking now into consideration that the surf on the Pacific Ocean side is very strong, and that no steamer can land at the wharf of any harbor with the exception of one—Corinto, Nicaragua—it is easy to understand that when merchandise is handled so much cases loosely packed will arrive in a bad state. Often some of the contents are stolen or lost through bad packing, for which nobody seems to be responsible. Many merchants here will tell you, "We do not buy goods in the United States, because they do not know how to, or will not, pack the way they ought to be packed."

Furthermore, a great many goods in Guatemala and all over Central America are transported by mule or "mozo" (Indians) to the interior. While some merchants may order goods to be packed in a manner which may seem ridiculous to a merchant doing business in the United States, their instructions ought to be invariably followed to the letter.

Still, another reason for European preference is found in the qualifications of their agents as compared with those sent by American firms. They recognize the fact that they are to deal with a people proverbially polite and yet easy of access if approached after their own manner, but who are also very conservative and slow in bargaining. Their agents "are, without exception, far superior to their American rivals."

In order to obtain a larger portion of this trade it is essential to remedy the evils to be inferred from the above. It is of paramount importance to respect the wishes of the Indian, who is the largest consumer, and not attempt to force him to buy tools of a shape he is not accustomed to, and which are distasteful to him at first glance. He must be humored to the extent of introducing him by degrees to the best in quality and design. In short, the trade

should be studied intelligently, and the articles made to fit the demand.

The following are some of the articles now admitted into Guatemala free of duty: Houses of wood or iron; fire brick, lime, tiles of clay or glass, clay pipe, plain or barbed wire, materials for the construction and equipment of railways, materials for electrical illumination, anchors and hoisting tackle, iron railings and balconies, iron fire places or stoves, machinery, including steam machinery for agriculture and mining.

The Low Price of Wheat.

The price of wheat fell last week to a lower point than had been deemed within the range of possibilities. It touched a price at Chicago that had not been known since 1857. This is a most significant statement. For almost 40 years wheat has been maintained at values usually far above the ruinous rate at which it sold during that gloomy period for both farmer and manufacturer. At that time railroad building was in its infancy in the West. There were but a few scattered lines penetrating only the most populous sections and uniting the few cities of importance in the Mississippi Valley. Great stretches of fertile lands were without transportation facilities except such as were afforded by farmers' wagons. Hauling crops to market was a formidable undertaking, costing as much as the crop itself was worth. The sturdy pioneers who had settled in the West, attracted by the fertility of the soil and the ease with which they could become owners of vast tracts of land, found themselves very poor notwithstanding the enormous crops they were able to raise, merely because they were unable to find a market near enough to sell in at even a slight profit. Everything was cheap, but farm products were particularly low in price.

The waste of war, the rapid increase in population through immigration, the growth of manufactures, the establishment of large centers of population, and the multiplication of railroads all affected the price of wheat in after years, and until quite recently wheat growing has been fairly profitable. Western farmers have prospered. Many of them have grown rich, partly through the successful management of their farms and partly through the advance in the value of their lands. They have been able to feed not only this country, but to assist in supporting the teeming population of Europe, sending their grain 1500 to 2000 miles to reach the seaboard. And yet, notwithstanding the enormous distance it has been hauled, transportation has been so cheap that the farmer could stand the cost and realize some profit.

To fall back from such a condition to practically the times of 1857 is a frightful retrogression. It may well cause serious forebodings. It is particularly aggravating to the farmer, in view of the fact that he has been educated by

economists to believe that the population of the civilized portions of the earth is increasing at a more rapid rate than the facilities for the production of food are expanding. At the same time, also, he hears of the prospective failure of the crops in countries which have always contributed an important share to the wheat product of the world. If these prices can prevail under such conditions, to what depth would wheat tumble with a full crop in every country? Is there any prospect of relief for him?

Turning to another class of men, but who are depending for their prosperity on the farming community, we see a different state of affairs from what would naturally be expected under the circumstances. The agricultural implement manufacturers are so far from being disheartened by the prospects of scarcity of money among their customers that they are now placing contracts for material to be worked up into farm machinery and sold during the coming year. They are not purchasing small quantities from hand to mouth, carefully feeling their way, but are buying as heavily as in previous years when farmers were prosperous. In some cases the contracts for iron and steel which have been thus placed are larger than ever before. Manufacturers of stoves also depend to a great extent on the farmers. They are making up stocks to be sold this autumn in the apparent belief that customers will be found as usual, and some of them evidently are of the impression that they will be able to market more goods than ever before. It is not possible that astute manufacturers such as these are can be completely wrong in their reckoning. On the contrary, their calm faith in the future and the boldness with which they continue their vast business operations this year as in other years should counteract the wails of the alarmists who would make us believe that the sun of prosperity will never shine again.

A homily might be written just now on the evils of savings banks. Here are these supposedly beneficent institutions, which encourage thrift among working people, suddenly locking up immense amounts of currency to enable them to withstand "runs" from their depositors and thus causing money to be tighter than ever in the towns in which savings banks are located. They have become very numerous throughout the country, penetrating even rural districts, but are of course strongest in manufacturing towns. In ordinary times they add considerably to the banking capital of the community, enabling manufacturers and business men to enlarge their operations, and perhaps extend them more than they would if money was more difficult to get. At a time like this, however, when accommodations are urgently needed, loans are all called in, and a large share of the available cash of the community locked

up for days that may be dangerous, or weeks that may be fatal, to business life. It is unfortunate, but it cannot be helped, and savings banks are not to be condemned for this occasional eccentricity in their usually benignant career.

Labor Matters at Pittsburgh.

While the wage scale governing wages in rolling mills for the year 1893-94 has not as yet been finally adopted, sufficient progress was made at the meetings of the Conference Committees held in Pittsburgh last week to warrant the statement that a settlement will be reached without a strike or a lockout. Daily meetings of the committees representing the Amalgamated Association and the manufacturers have been held in the Ferguson Building, Pittsburgh, and at the last meeting, which was held on Saturday, July 1, the committee representing the Amalgamated Association announced that they would accept a scale based on \$5 per ton for boiling and would accept slight reductions in the finishing departments. A settlement would doubtless have been reached before adjournment, but during the closing moments of the session some new points were brought up for discussion, and it being deemed advisable to have more time in which to consider them, upon request from the manufacturers an adjournment was had, to reconvene at the same place on Saturday next, the 8th inst., when it is thought a settlement will be reached. A general shut down of union and non union mills in the Pittsburgh and Mahoning Valley districts and elsewhere took place on the night of June 30, when the old scale expired. A number of plants will remain idle for a month or longer, while necessary repairs are being made, and stock is being taken, while others will be idle only a few days. In the Mahoning and Shenango Valleys the shut down is general, and may extend through the entire month of July and longer. James H. Nutt, manager of the labor department of the Mahoning and Shenango Iron Manufacturers' Association, was in Pittsburgh last week in consultation with M. M. Garland, president of the Amalgamated Association, for the purpose of arranging a meeting of the Conference Committees. No definite date was set for this meeting, but it will likely be held during the early part of next week. The following named firms have signed the iron scale of the Amalgamated Association for the year beginning July 1, 1893, and ending on June 30, 1894:

J. Painter & Sons Company, Pittsburgh, Pa.
Ohio Falls Iron Works, New Albany, Ind.
Cincinnati Rolling Mill Company, Cincinnati, Ohio.
Lookout Iron Company, Harriman, Tenn.
Muskegon Iron & Steel Company, Muskegon, Mich.
The Westerman Natural Gas Iron Company, Marion, Ind.
Cumberland Steel & Tin Plate Company, Cumberland, Md.
National Forge & Iron Works, East Chicago, Ind.

It should be here stated that all firms signing the scale before it has been finally agreed upon do so with the distinct understanding that they will be allowed the benefit of any changes made in the scale when it is finally adopted in conference.

As announced in these columns last week, a meeting of the Conference Committees representing the Association of Iron and Steel Sheet Manufacturers and the Amalgamated Association was held in the Times Building, Pittsburgh, on Thursday, June 29. The meeting was in session until midnight, and resulted in the adoption of a sheet-mill scale for the year 1893-94. The scale is the same as the one that expired at midnight on June 30, with the following exceptions. Prices for rolling in the new scale are based on the new United States standard weight of gauges for iron and steel plates and sheets, and are as follows:

Gauges.	Price for rolling on a 2 cent card per ton, 2,240 lbs.
No. 8 and heavier.....	\$3.60
Nos. 9 to 11.....	4.00
Nos. 12 to 14.....	4.80
Nos. 15 to 17.....	5.55
Nos. 18 to 21.....	6.75
Nos. 22 to 24.....	8.00
Nos. 25 and 26.....	9.20
No. 27.....	10.00
No. 28.....	10.65
No. 29.....	11.15
No. 30.....	12.00

When the sheet scale for 1893-94 was drawn up by the Wage Committee of the Amalgamated Association, foot-note No. 1 in the 1892-93 scale, reading as follows, was left out:

1. When sheets are rolled lighter than the gauge they represent, the mean between that and the next lighter gauge to be taken for the rolling price.

Upon request of the manufacturers it was agreed to re-insert this, and it will appear in the foot notes in the scale for 1893-4, as clause No. 19. No other changes occur until the scale for rolling muck bar and finished iron for sheet iron is reached and in this the following change was made: Foot note reading, "Seven (7) per cent. to be deducted from all finished iron for clippings," has been changed to read "ten (10) per cent." The conferences between the committees of the sheet manufacturers and the Amalgamated Association were marked by the best of feeling, and when the scale had been adopted the following official statement was handed out by J. C. Kilgallon, secretary of the Amalgamated Association:

The scale on sheet and tin mills was signed this morning at 1 o'clock. The scale as arranged is practically the same as that in force last year. A few adjustments have been made that are equally advantageous to both parties.

The sessions of this conference have been very pleasant. The disposition on the part of both was clearly that of acting justly. All felt that mutual interests were at stake, and the business-like manner in which the conference was conducted is highly creditable to all concerned.

When the scale had been signed President Garland spoke appropriately of the friendly feelings existing, and was followed by Mr. McMurtry, who complimented the Amalgamated Association committee for the very acceptable manner in which they had conducted their negotiations.

A very satisfactory tariff resolution was readily agreed to.

As announced above, the scale governing wages in tin and black plate mills was also adopted and is the same as the old scale, no changes whatever being made in it. The following named firms are members of the Association of Iron and Steel Sheet Manufacturers and will be governed by the sheet scale as adopted:

Apollo Iron & Steel Company, Pittsburgh, Pa.
P. H. Laufman & Co., Limited, Apollo, Pa.
Arethusa Iron Works, New Castle, Pa.
Canonsburg Steel & Iron Company, Canonsburg, Pa.

Chartiers Iron & Steel Company, Limited, Pittsburgh, Pa.
Kirkpatrick & Co., Limited, Pittsburgh, Pa.
Republic Iron Works, Pittsburgh, Pa.
Moorhead-McCleane Company, Pittsburgh, Pa.
United States Iron & Tin Plate Mfg. Company, Demmler, Pa.
Jennings Brothers & Co., Limited, Allegheny, Pa.
Whitaker Iron Company, Wheeling, W. Va.
Wheeling Iron & Nail Company, Wheeling, W. Va.
Ætna Iron & Steel Company, Bridgeport, Ohio.
Britton Iron & Steel Company, Cleveland, Ohio.
The Britton Rolling Mill Company, Cleveland, Ohio.
Burgess Steel & Iron Works, Portsmouth, Ohio.
Cambridge Iron & Steel Company, Cambridge, Ohio.
Cincinnati Rolling Mill Company, Cincinnati, Ohio.
Falcon Iron & Nail Company, Niles, Ohio.
Wallace, Banfield & Co., Limited, Irondale, Ohio.
The Eagle Iron & Steel Company, Ironton, Ohio.
New Philadelphia Iron & Steel Company, New Philadelphia, Ohio.
The Piqua Rolling Mill Company, Piqua, Ohio.
Reeves Rolling Mill Company, Canal Dover, Ohio.
The Standard Iron Company, Bridgeport, Ohio.
Summers Brothers & Co., Struthers, Ohio.
The Irondale Steel & Iron Company, Anderson, Ind.
The Midland Steel Company, Muncie, Ind.
New Albany Rail Mill Company, New Albany, Ind.
St. Louis Stamping Company, St. Louis, Mo.
The New Albany Rail Mill Company, New Albany, Ind.

A number of the above concerns will probably start their plants up within the next few days, or just as soon as necessary repairs have been completed. Those who have puddling furnaces in their plants will pay the old prices for this class of work until the iron scale has been adjusted, when they will be allowed the benefit of any changes that are made.

A number of conferences have been held during the past week between Jones & Laughlins, Limited, of the American Iron & Steel Works, Pittsburgh, and a committee of their workmen from the blooming and converting departments, but as yet a settlement of the steel scale has not been reached. Some material concessions in certain departments have been asked by the firm in order to place them on a more equitable footing with competitors employing non-union labor, especially the Duquesne Steel Work, where the men are paid largely by the day system instead of on a tonnage system. The large output at the Duquesne plant thus results in a much lower range of wages for the same kind of work than prevails in mills employing Amalgamated Association labor. It is thought that an agreement between the firm and their workmen will be reached within the next few days.

As yet no date has been set for a conference between the Hainsworth Steel Company of Pittsburgh and the Amalgamated Association. The steel scale

of this firm expired on June 30, and the works closed down on that date for the purpose of making repairs which will take two or three weeks to complete. Of the four concerns in Pittsburgh proper, that make Bessemer billets, Jones & Laughlins, Limited, and the Hainsworth Steel Company sign the scale, while Shoenberger & Co. and the Duquesne Steel Works operate with non-union men.

Tin Plate Production to March 31.

Colonel Ayer's report on the production of domestic tin and terne plates during the first quarter of 1893 not being yet forthcoming from the Treasury Department, a Pittsburgh journal—*Tin and Terne*—has compiled an interesting summary, based on reports obtained from 24 firms engaged in the manufacture, which indicates that the increase in production of domestic tin plates during the months of January, February and March approximates 36 per cent. more than that of the last quarter for which we have the official returns—namely, that ending December 31 last, notwithstanding that manufacture had been more irregular at some of the works. The figures given by these concerns, which include two-thirds of the whole number of tin-plate works now in operation, are tabulated as follows:

	Lighter than 63 lbs. per 100 sq. feet.	Heavier than 63 lbs. per 100 sq. feet.
Tin plates.....	Pounds. 12,929,129 $\frac{3}{4}$	Pounds. 417,703
Terne plates.....	10,502,556 $\frac{1}{2}$
Total.....	23,431,686 $\frac{1}{4}$	417,703
Made from American black sheets.....	8,950,826	
Made from imported black sheets.....	12,310,165	
Total.....	21,260,991	

When it is understood that the 12 or 13 producing concerns from whom no reports were collected include in their number some of the largest in the country, the assumption that at least 32,000,000 pounds will represent the total production of tin and terne plates for the quarter appears to be a conservative conclusion.

PERSONAL.

J. S. Robeson, who has been connected with the Pottstown Iron Company for a number of years, has accepted a position under James Gayley, at the Edgar Thomson Works, Pittsburgh.

At a meeting of the Board of Directors of the Pennsylvania Steel Company Edmund Smith was elected first vice-president of the company, and will take charge of the financial department. Mr. Smith was for a long time connected with the financial department of the Pennsylvania Railroad Company, and is well known in financial circles. William D. Winsor was elected a member of the Board of Directors, to fill a vacancy.

James Connors, for a number of years with Mackintosh, Hemphill & Co., Limited, founders, at Pittsburgh, has been appointed superintendent of the new foundry now being erected at Bessemer, Pa.

Treasury Decisions.

Drawback on Terne Plates.

TREASURY DEPARTMENT, MAY 11, 1893.

SIR: On the exportation of terne plates in sizes 14 x 20 and 20 x 28 inches, manufactured by Merchant & Co. of Philadelphia, Pa., from imported pickled or smoothed or cold rolled black plates, a drawback will be allowed equal in amount to the duty paid on the imported black plates used in the manufacture, less the legal deduction of 1 per cent.

The drawback entry must specify the number, brand, size, gauge and net weight of the finished terne plates in each package to be exported, and the number, size, gauge and net weight of the imported black plates used in the manufacture of such terne plates.

The manufacturers shall be required to state in their declaration on the entry that the terne plates were manufactured and packed in the manner described in their sworn statement dated April 26, 1893, and to furnish the proofs of identity prescribed by article 758 of the Customs Regulations of 1892.

The statements in the entry as to the quantity, sizes and weights of the terne plates to be exported shall be verified by an examination of the packages and their contents and by such test weights as may be necessary, and the quantity of the imported black plates used shall be determined on the liquidation of the drawback entry by the weigher's return made at the time of the importation.

Respectfully yours,

C. S. HAMLIN, Assistant Secretary.
COLLECTOR OF CUSTOMS,
Philadelphia, Pa.

Notes from Indiana.

BRUCE & MARKS MFG COMPANY,

Gas City, Ind., recently started their plant at work making grass hooks, which they are now turning out at the rate of 1000 a day, though their capacity will be more than double this when the whole plant is in operation and all the machinery and hammers are set up. Their steel comes to them rolled in special shapes, from which their patented hooks are made. Hay and corn knives will be added to their productions as the season advances. Chas. H. Marks attends the manufacturing, having had many years of experience with the implement makers at Auburn, N. Y.

THE WESTERN BRASS COMPANY

of Gas City are just getting to work in a new plant for making gas fixtures, chandeliers and brass fittings. This is a branch of their works at Bridgeport, Conn., and Whitehall, Mich., and the line of goods made in Gas City will be principally for gaslighting.

MOREWOOD & CO.

The erection of their tin-plate manufacturing plant at Gas City has been very much delayed by the weather which prevented their railroad siding being run in and so prevented them getting materials. The buildings, however, are now all up and the tinning stacks also. The size of the buildings, the number of them and the space they cover all indicate a large producing capacity and show that experienced judgment was displayed in their arrangement. No undue haste is being used in getting into operation, but as

the machinery is now arriving and being set up it is fair to suppose they will be ready for early fall trade.

THE ELWOOD IRON WORKS,

Elwood, Ind., have two plants, the one on the north side being new, and is just about starting to make radiators for the Holland Radiator Company of Chicago. The older plant consists of a foundry and machine shop, where they make gate valves and fittings for natural gas work, and has been considerably occupied in making annealing boxes for black sheets for the tin plate plants, an improved tinning machine for both bright and terne plates, a cleaning machine for running the coated plates through bran and a duster to remove anything from the coated surface before it is sorted and boxed.

THE AMERICAN TIN-PLATE COMPANY.

Another tinning stack has just been put in operation at Elwood, and in order to turn out the black sheets faster a mill to roll the billets to tin-plate bars is now ready to start, and a furnace for heating the billets is ready for use. The superintendent, W. H. Banfield, is more than pleased with his improvement in the tin plate mills, which has increased their capacity.

THE AKRON FORGE COMPANY

of Akron, Ohio, have just broken ground at Elwood for a branch of their works. The building is to be 70 x 240 feet, and will be pushed to an early completion to get the benefit of gas.

THE INDIANA TIN-PLATE COMPANY,

Atlanta, Ind., enjoy a supremacy in manufacturing, being the only plant in that town to attract wide attention. Under the experienced supervision of Enoch Stanford, the plant is running in a conservative and satisfactory way. They were annoyed recently by the tank of one of their tinning machines cracking, which necessitated the delay incidental to putting another new stack at work.

THE PERFECTION MFG. & SUPPLY COMPANY,

at Tipton, do a general foundry and machine business, but make a specialty of a straightway, quick opening valve for natural gas. These valves are called on to stand a gas pressure of 350 pounds to the square inch in use, and in some sections the pressure has been as high as 500 pounds, but so high a pressure seldom continues.

At Pittsburgh on Saturday, the 1st inst., the report of the master was filed in the case of Isaac W. Frank and Edward Kneeland against the Lewis Foundry & Machine Company, Limited, and J. L. Lewis and others, stockholders. The suit was brought to secure a dissolution of the company, the plaintiffs, who were secretary and treasurer of the company, having been unable to agree with J. L. Lewis, the president and manager, who had secured a controlling interest. The master, after reviewing testimony taken in the case, found there was a flaw in the organization of the company and also that under the laws governing limited partnerships the lack of harmony existing between the members rendered it impracticable to continue the association. He therefore recommended a decree for the dissolution of the company and the appointment of a receiver to take possession of the assets and convert them into money and have an ac

counting and a distribution. The report was a surprise, as the company were on a good basis and earning large profits.

West Virginia Coke for Chicago.

A move which means much to the coke operators of the Connellsville region has been made by the Illinois Steel Company in placing contracts for their supply of coke for the next half year with the Norfolk, Shamokin, Lick Creek and Powhattan works of the Flat-Top region of West Virginia. The price is not made public, but it is understood to be less than the offer made by the H. C. Frick Company, who supplied the firm last year, and who are said to have made an offer of a lower figure for the coming six months. The Norfolk & Western Railroad is understood to have cut its rate in consideration of the regularity with which the freight will be offered, and also through a desire to bring into prominence its new line to the West. The steel company have put 700 of their cars at the disposal of the coke companies, and 40 cars will be shipped daily over the Norfolk & Western, taking nearly, if not all, these 700 cars to keep the supply going, and empty cars coming, allowing four trains of 40 cars each, on the road each way, and two trains at each end loading and unloading. For years coke producers in the Virginias, Kentucky and Tennessee have tried to induce furnacemen to use their product, but without success, except for the manufacture of mill and low grade foundry irons. It has been asserted in the Pittsburgh and Wheeling districts, where most of the Bessemer iron is made, that no coke except Connellsville product would produce a satisfactory quality of Bessemer iron. It is admitted that owing to crude methods first adopted in the West Virginia fields the product was inferior, but the claim now is made that for two or three years coke has been made at Fairmont, along the West Virginia Central, the Chesapeake & Ohio, in the New River region and along the Norfolk & Western, in West Virginia, as good as the Connellsville coke. The Davis Coal & Coke Company, operated by ex-Senator Henry G. Davis and ex-Secretary of War Elkins, are shipping coke to South America and Mexico in competition with English coke, and have a regular trade in the State of Washington and California. The Baltimore & Ohio is completing a short line of road, which has for its object the placing of Fairmont coke on the Pittsburgh market, while the Pennsylvania Company have let the contract for building a line parallel to it on the opposite side of the Monongahela, to reach the same field. The amount of money invested in coking coal lands in West Virginia during the last five years is estimated at \$20,000,000.

Partial returns from the blast furnaces for the month of June show that a number of changes have occurred in the status of the furnaces, among which we may note the following: Belfont Furnace, at Ironton, Ohio, banked on the 3d inst., and will remain banked during the remainder of July. Philadelphia Furnace of the Florence Cotton & Iron Company, Florence, Ala., blew out June 22. Bloom, at Bloomsburg, Pa., resumed during June. Marshall, at Newport, Pa., was preparing to suspend by the Fourth. One of the Lebanon furnaces of Coleman & Brock, at Lebanon, Pa., went out of blast on June

30 indefinitely. No. 2 stack continues in blast. The furnace of the London Iron Company, at Chapinville, Conn., blew in June 15. No. 3 furnace of the Andover Iron Company, at Phillipsburg, N. J., is now out for repairs. The two other stacks are also idle.

NEW PUBLICATIONS.

STANDARD STEEL CONSTRUCTION. A Manual for Architects, Engineers and Contractors. Arranged by J. L. Larimer, and published by Jones & Laughlins, Limited. Pittsburgh and Chicago. 215 pages. Price, \$2.

This is a very interesting and valuable volume to all interested in steel construction. It is largely a catalogue of the special shapes manufactured by Jones & Laughlins, of which colored diagrams are given with all dimensions marked. In addition to this, however, there are a large number of tables and formulas of safe loads, safe spacing, &c., which are desirable in the same volume. Interesting notes are given on standard connection angles, built column sections, and connections for Larimer columns. Illustrations are presented of fire-proof floors, partitions, ceilings and roofs, giving general details of connections. Some 50 pages are devoted to tables of safe loads, proper spacing, &c., for beams, girders, angles, channels and tees, together with practical examples of the application of the tables. Tables of properties of beams, angles, tees, &c., are given, also tables of radii of gyration of equal and unequal-legged angles, also weights of steel of different sizes, weights of other substances, areas and circumferences of circles from $\frac{1}{16}$ to 100, logarithms of numbers from 10 to 100, natural sines, &c., from 0 to 90, squares and cubes, and square roots and cube roots from 1 to 1000, and some leading problems in mensuration. The book is of pocket size, handsomely bound in leather, with a flap, and has full gilt edges.

BIOGRAPHICAL DIRECTORY OF THE RAILWAY OFFICIALS OF AMERICA. Edition of 1893. Edited and compiled by T. A. Busbey. Published biennially by the *Railway Age* and *Northwestern Railroaders*. Chicago.

To the general public a book such as this conveys a good idea of the vastness of the railroad business in the United States, which requires so many principal officers to look after it. In the present edition some 3800 officials are included; a brief biographical notice being attached to each individual. This list requires a large volume of 420 pages, closely printed. To railroad men the book will be, doubtless, a useful and interesting one. It is well printed, and a great deal of information in regard to each person is given in the most concise manner possible.

George Wheeler, for upward of 40 years connected with the hardware trade in New York, died June 19 at his home in Brooklyn, aged 61 years. He was born in England and came to this country when a lad with his parents. At different times he was connected with the Peck Smith Mfg. Company, now known as the Peck, Stow & Wilcox Company, Landers, Frary & Clark, Scovill Mfg. Company, and for the last ten years represented John Chatillon & Sons on the road, being in their employ at the time of his decease.

MANUFACTURING.

Iron and Steel.

Hughes & Patterson of Philadelphia are just getting ready to start the second of the series of fine rolling-mills they are putting up on the old Stephen Robbins mill site recently purchased by them. All the old buildings on this property have been removed and in their place have been erected the most substantial iron and brick buildings. In these new buildings is now being installed a fine rolling mill plant. These mills are being equipped with the newest and most modern machinery, and labor-saving devices are used everywhere. The product in all the mills is handled by Ridgway steam-hydraulic cranes in connection with a system of overhead run ways. The roll trains are so arranged that they can be changed quickly by the Ridgway cranes. The cranes for this purpose instead of being placed on the floor level, as is the usual practice, are carried between the tops of adjacent housings, thus being up and entirely out of the way. A large tinning plant is also being added to the works, the machinery for which to a large extent has been imported from Wales. When the whole plant is completed it will be the most complete and notable iron manufacturing establishment in the city of Philadelphia, if not in the State of Pennsylvania.

The Crum Creek Iron & Steel Company of Chester, Pa., have made an assignment for the benefit of their creditors. The company estimate their liabilities at about \$120,000 and their assets at \$119,000. The latter includes \$40,000 due the company from a former agent, which is thought to be practically worthless. The plant is valued at \$60,000, but owing to the present stagnation in the iron business it may not, it is thought, bring more than the amount of the first mortgage, \$16,000, which is held by the Delaware County National Bank of Chester. A second mortgage is held by W. S. Blakely, trustee for certain individuals who have advanced cash to tide the company over their difficulties. Carrying these notes and the dullness of trade combined, together with the clamoring of other creditors, forced the company to assign. The assignee is John B. Hinksen, and the Court appointed H. B. Black and Frederick Balt appraisers. The officers of the company are: D. Rees Esrey, president; H. B. Birtwell, general manager and treasurer; Walter L. Birtwell, secretary.

The work of pumping out the Champion Mine at Ishpeming, Mich., has been stopped and the pumps dismantled. The stoppage is regarded as next to the final abandonment of the mine, as it would require six months or a year to pump it dry when once filled with water.

At the annual meeting of the stockholders of the Nashua Iron and Steel Company of Nashua, N. H., the following directors were elected: Aretas Blood, Manchester; H. Adams, Boston; W. D. Cadwell, V. C. Gilman, J. D. Chandler, Nashua; clerk, E. F. Chandler. The directors organized by the election of Aretas Blood, president; E. F. Chandler secretary.

Center Furnace, at Ironton, Ohio, has stopped for a few days until necessary repairs can be made.

Articles of incorporation of the Whitely Malleable Iron Works have been filed in Indiana. It is proposed to erect a plant at Whitely, Ind., the main building of which is to be 700 x 360 feet in size.

The *Bulletin* of the Iron and Steel Association prints a list of 32 failures which have taken place in the iron trade of this country since January 1 of this year. This is probably the most disastrous six months' record which the history of the iron trade of this country affords.

Pioneer Furnace, at Pottsville, Pa., operated by the Pottsville Iron & Steel Company, has blown out for repairs.

The Shelby Steel Tube Company of Shelby, Ohio, have made great progress during the past year in the production of tubing, which they are now turning out as small as one-eighth to two and one-fourth, and as light as No. 28 gauge.

At the annual meeting of the stockholders of the Bethlehem Iron Company the following Board of Directors was elected: Robert H. Sayre, Sr., E. P. Wilbur, R. P. Linderman, George H. Myers and John Fritz of Bethlehem, and Joseph Wharton and Bouveau Borie of Philadelphia. The Board of Directors afterward elected R. P.

Linderman president; Robert H. Sayre vice-president and general manager; John Fritz consulting engineer; second vice-president, Russell W. Davenport; superintendent, Owen Leibert; assistant superintendent, Robert H. Sayre; treasurer, C. O. Brunner, and secretary, Abraham S. Schopp.

James Corns & Son, proprietors of the Massillon Rolling Mill, at Massillon, Ohio, advise us that their plant will be closed down in all departments during July for the purpose of stock taking and making repairs.

We are officially advised that the report that the interests of the Junction Iron Company, Mingo Junction, Ohio, and the Brilliant Iron & Steel Company of Brilliant, Ohio, would be consolidated into one interest is entirely without foundation. We are informed that such a project has not even been considered, and the parties interested are unable to learn how such a report should have originated. In the same connection we are authorized to state that the report that the Junction Iron Company would abandon the manufacture of steel nails is also without foundation. The concern will continue in the manufacture of nails right along, and have no intention of abandoning their manufacture.

The Sharon Boiler Works, Limited, of Sharon, Pa., have received a contract for the iron work to be used in the remodeling of the Belmont Furnace of the Wheeling Steel & Iron Company, at Wheeling, W. Va. These improvements will include the erection of three hot-blast stoves of the Massick and Crookes design, the contract for which has been awarded to McClure, Amsler & Co. of Pittsburgh.

The Sharon Steel Casting Company, Sharon, Pa., manufacturers of open-hearth steel castings, advise us that the report that their firm with others would be consolidated under the name of the Union Steel Casting Company is entirely without foundation.

For three months ending March 31 the output of the Irondale Rolling Mill & Tin Plate Works, Wallace, Banfield & Co., Limited, at Irondale, Ohio, amounted to 2,088,221 pounds of black sheets. Of this product 1,121,381 pounds were tinned, 234,194 pounds were made into terne plate and 732,646 pounds were sold in the open market to other manufacturers of tin plates for tinning purposes. The plant of this firm is being operated to its utmost capacity, and they are entirely sold up on tin and terne plates and black sheets until September 1 next.

The nail factory and blast furnace of the Norton Iron Works, at Ashland, Ky., manufacturers of pig iron and cut nails, have both been closed down, and will remain idle until there is a change for the better in the iron business. We are also advised that the Bessemer plant at Ashland, operated by the above concern in conjunction with the Belfont Iron Works Company and the Kelly Nail & Iron Company of Ironton, Ohio, is also idle, and will not resume operations until the business situation shows material improvement.

As already noted in these columns, the firm of Morris & Bailey, manufacturers of cold rolled steel, at Pittsburgh, have been incorporated into the firm of the Morris & Bailey Steel Company, with a capital of \$100,000. The new firm have recently purchased 7 acres of ground at Wilson Station, on the line of the Pittsburgh, Virginia & Charleston Railroad, a few miles from Pittsburgh, and have commenced the erection of two iron buildings, one 100 x 200 feet, and one 50 x 210 feet in size.

The Pittsburgh Steel Casting Company of Pittsburgh, manufacturers of refined steel castings, advise us that their firm have not concluded any arrangement for a consolidation of interests under the name of Union Steel Casting Company, with a capital of \$1,000,000, nor do they know of such a company being organized.

The National Tube Works Company of McKeesport, Pa., have declared the semi-annual dividend of 1½ per cent. on the preferred stock.

A special meeting of the stockholders of the Pennsylvania Steel Company, Steelton, Pa., will be held on August 15 next to take action on the proposed increase on the bonded indebtedness of the company from \$8,000,000 to \$9,000,000 in order to pay the floating indebtedness.

The Mahoning Rolling Mill Company have entered suit against the Duquesne Tube Works Company of Pittsburgh, and

Thomas Thorn, assignee, to recover on two notes given in payment for merchandise. The amounts are \$4881.55 and \$2319.88. The Pennsylvania Railroad Company also entered suit against the same company to recover \$306.37 for freight charges due on merchandise shipped.

Park, Brother & Co. of Pittsburgh are building on the glass property adjoining their works, purchased in the spring, a new rolling mill which will have one 14-inch train and another train which will be either 20 or 24 inch.

The new buildings of the Chicago Steel Works are nearing completion and will be in full operation at Chicago Heights, Ill., not later than July 15. Their buildings will cover 5 acres of ground. The machinery and plant throughout will be all new and modern and it will be one of the most complete steel mills, in its particular line, in the country.

Machinery.

The Detrick & Harvey Machine Company of Baltimore, Md., have just completed and delivered an open-sided extension planer for the United States Government Watertown Arsenal. It will plane material 11 feet wide, 8 feet high and 24 feet long. It weighs about 150,000 pounds and is to be used in the manufacture of gun carriages for guns 8 inches to 12 inches caliber.

The Lodge & Davis Machine Tool Company, Cincinnati, Ohio, have just received an order from the Berlin Anhaltische Maschinenbau Actien-Gesellschaft, Berlin, Germany, for several of their improved machine tools.

The Eynon-Evans Mfg. Company, manufacturers of valves and jet apparatus at Fifteenth and Clearfield streets, Philadelphia, finding the demand for the quality of castings which they are obliged to use in their work greater than their present capacity to supply, have recently purchased the property adjoining their works and have turned the same into a foundry capable of making the largest castings. The furnaces and floors are served by Ridgway steam-hydraulic cranes, enabling them to handle the heaviest work quickly. It is expected to have the new foundry in operation early in July.

The Wm. Fewell Company, Cincinnati, Ohio, manufacturers of engine builders', steam fitters' and plumbers' brass goods of every description, have just completed a handsome new structure located at 225-231 Spring Grove avenue that city. The dimensions of the new plant are: Main building, 225 x 45 feet; foundry, 150 x 60 feet, and pattern shop, 50 x 20 feet. The buildings are three stories in height and cover 2 acres of ground; a 125 horse-power Corliss engine supplies the motive power also for an 80 horse-power electric generator for illuminating, besides for four electric motors used to furnish power in the more distant portions of the establishment. The concern is officered by Wm. Powell, president, and Theodore Albert, secretary, and gives employment to 200 hands.

The Washburn Shops, a department of the Technology Institute, Worcester, Mass., have ordered a Triplex electric pump to be operated by a Perot electric motor. The pump will supply sufficient water to operate two hydraulic elevators having pistons 5½ inches diameter by 75 feet run. The elevators will be operated on pressure-tank system at about 140 pounds pressure per square inch and will run at a speed of 400 feet per minute. The apparatus is now being erected in the new office building of Meekins, Packard & Co., Springfield, Mass.

The Valk & Murdock Iron Works Company of Charleston, S. C., are so crowded with work that they have found it necessary to again enlarge their foundry and are now erecting a large addition. The new works will be equipped with the most modern labor-saving machinery. The crane which has been adopted is the Ridgway steam-hydraulic, and the order for same has been placed with Messrs. Ridgway & Son, Coatesville, Pa., the builders.

The machine shop and foundry forming the new plant just completed at Massillon, Ohio, for the J. H. & D. Lake Company, formerly of Hornellsville, N. Y., are now in operation. The increasing business of the company had outgrown the old works at Hornellsville, while the new works, in addition to being larger and more complete, are more central to their trade and permit the prompt filling of orders. The company manufacture friction clutch pulleys and cut-off couplings, and shafting, hangers, &c.

At Springfield, Mass., the Springfield Coil Boiler Company have been formed, with a capital of \$10,000, to develop the invention of Dr. Cushing.

An addition 100 x 62 feet will be built to the Hope Iron Foundry of Wm. Adams & Co., at Philadelphia.

Work at the new Carroll-Butler Foundry, at Houghton, Mich., has been started.

Plans are being prepared for an addition to the works of the Union Malleable Iron Company of Moline, Ill. The new building will be 82 x 94 feet.

The Cordesman Machine Company have succeeded in securing another large contract for machinery to go to the United States navy yards, making the third within a year.

James Rees & Sons, boiler manufacturers, of Pittsburgh, have received a contract for five new boilers to be furnished to the Riverside Penitentiary in Allegheny, Pa.

The Standard Underground Cable Company of Pittsburgh have declared the regular quarterly dividend of 1½ per cent., payable on July 10 and after.

The Westinghouse Electric & Mfg. Company have declared the usual semi-annual dividend of 3½ per cent. on preferred stock, payable on July 20 and after.

The Niles Tool Works Company of Hamilton, Ohio, manufacturers of machine tools, are preparing plans for the erection of a new foundry. The size of the foundry will be 120 x 435 feet. The center section will be 60 feet span, covered by three electric power cranes of 30 tons capacity each. This main foundry will be joined by five wings for various kinds of castings, these wings being about 40 feet wide by 160 to 170 feet in length, and all of these will be operated with power travelers. Large core rooms and cupola rooms, &c., will adjoin, and be independent of the main building.

The Fischer Foundry & Machine Company of Pittsburgh, Pa., entered suit against the City of Pittsburgh to recover \$2364.64. The amount, it is claimed, is due for iron castings, &c., sold to the city. The plaintiff company say the contract was regularly awarded to them as the lowest bidders. The castings were for sewer drops, manholes, &c.

The Holly Mfg. Company of Lockport, N. Y., are enlarging their molding shops. This is done mostly by excavating and removing the largest stones ever handled in that city. Many of the men use their spare time in drilling holes in the solid rock which forms the bottom of the shop. When a sufficient number of holes have been drilled all of the employees vacate the building and heavy blasts are fired. This is so skillfully done that the walls of the structure are not disturbed in the least. The heavy rocks are then removed by a traveling crane, which has a lifting capacity of 15 tons. The rocks are used in filling in at the other shops. The large cavity produced enables the company to sink their walls to the proper depth.

Miscellaneous.

A number of the prominent manufacturing establishments of Worcester, Mass., have made large reductions in their force on account of falling off in business. From all sections of New England come complaints of enforced idleness among the industrial class.

The Hughes Steam Pump Company of Cleveland, Ohio, will remove their plant to some Western point yet to be chosen.

It is announced that the pipe works at West Berkeley, Cal., have been purchased by a San Francisco company who will repair and operate the plant.

The factory of the Turner & Seymour Mfg. Company, at Torrington, Conn., makers of sheet metal and wire goods, has been almost totally destroyed by fire. The loss is put at \$85,000 and the insurance \$75,000. A new factory is in course of erection, and will be ready for occupancy in two months.

The W. H. Davenport Firearms Company of Norwich, Conn., have increased their capital from \$12,000 to \$30,000, the additional capital being subscribed in cash.

The plant of the Northern Mfg. Company, at Ashland, Wis., has been destroyed by fire at a loss of \$15,000.

A rumor was started recently at Buffalo, N. Y., that the Gatling Ordnance Company was in financial trouble. The company are building a plant for the manufacture of heavy guns at Gatling. President Wood of the company denies the report of the trouble absolutely.

TRADE REPORT

Transactions during the past week have, naturally, been on a very limited scale, so that the temper of the markets has not been tested sufficiently to judge of their tendencies. Still, there have been some important developments, which are sure to have their effect. Pittsburgh advices indicate that there will be no prolonged shut down of the local mills. It is understood that the scale is virtually agreed upon, and that reductions in the finishing ranging between 8 % and 15 % have been accepted by the men. What is expected to be the final conference is to be held on Saturday. While the chances are that the Valleys and the Chicago and St. Louis districts will follow the lead of Pittsburgh, there is still some possibility of a contest.

It looks, therefore, as though no material relief will come to the markets through any stoppage of the mills which will curtail the supply. Whatever hopes the Eastern mills may have based on such a contingency seem destined to meet with disappointment.

In raw materials the situation is very gloomy to producers. The Lake Superior Ore interests are suffering keenly, the passing of the dividend on the Minnesota Iron Company indicating the pressure felt.

From Pittsburgh comes the somewhat surprising report that the leading consumer of Coke in the Chicago district has made large contracts for West Virginia Coke, displacing a corresponding amount of the Connellsville product. This step is regarded as peculiarly significant in more ways than one.

The outlook in the Steel Rail trade is regarded as particularly gloomy. Business has been light for a considerable time and the mills are rapidly approaching the end of their order books. Under the circumstances little work is expected until the fall months.

Intimations of concerted action in banking furnaces come from the South, a course which would have a good influence if it were adopted.

The heavy contracts entered into last week by the agricultural implement makers in Chicago are decidedly encouraging. They prove that one important consuming interest is satisfied that prices are as low as they are likely to go.

In the metal trade the pressure of a stock of fully 10,000 tons is weighing down Pig Tin so that the new duty has no effect. Lake Copper is sagging in spite of the talk of a continuance of the "gentlemen's agreement." Lead is responding to the effect of the closing down of many Rocky Mountain mines.

Philadelphia.

Office of *The Iron Age*, 220 South Fourth St.,
PHILADELPHIA, Pa., July 3, 1893.

The first half of 1893 will be long remembered as one of the most trying that the Iron trade has ever experienced. There has been no special scarcity of business, and as a matter of fact, many large concerns have turned out a larger product than ever before, but prices were constantly on the decline, so that whatever figures were realized in one transaction had to be shaded on the one following. The second half of the year commences without any tangible evidences of improvement, and for a time, at all events, the trade will probably have to flounder around at the lowest prices on record. After such a period of prolonged depression a reaction must come sooner or later, and while, as already stated, there are no immediate evidences of such a contingency, the conditions are very favorable for a movement of that kind. Low prices, small stocks and decreased production must make their influence felt eventually, but how soon the turn will come is utterly impossible for any one to say. Things cannot be worse than they are, anyway, and when that point is reached improvement is usually not far distant. Consumers of Iron, as a rule, have been turning out a very large amount of work. Locomotive works were never busier than they have been during the past six months. Their output for the half year will come very close to 500 locomotives, giving employment to about 4500 hands. The Cramp Ship building Company come next with 4000 hands, which it is expected will shortly be increased to over 5000. Other large establishments, such as Bement, Miles & Co., William Sellers & Co., Southwark Foundry & Machine Company, George V. Cresson Co., Hoopes & Townsend Company, and others, with from 600 to 1000 hands, have been full of work, while in hardware specialties such concerns as Disston's, Enterprise Mfg. Company, Thos. Devlin & Co., G. & H. Barnett, McCaffrey File Company, North Bros. Mfg. Company and others, employing from 150 to 2000 hands each, have done as much as at any former period, and in some instances have exceeded even their highest previous output.

The stove trade, too, has been in good shape, with an exceedingly favorable outlook for the coming season's business. The depression, therefore, is not owing to any lack of business, but to the exceedingly low prices, and more recently to the disturbed condition of the money market. The subject has been discussed so frequently and the opinions of leading men in different departments of finance, commerce and manufacturing have been so widely published that it is not to be expected that we can furnish a new theory, although nothing really satisfactory or convincing has yet been hit upon. Sometimes we are told it is silver that is doing it, with others it is the change of administration, others claim that it is the fault of the late administration, while still others claim that it is because the country has no settled policy of any kind.

Each of these influences may have contributed something to the general disarrangement, but it is probably due more to the too rapid development of our capacity for production than to any other cause. Actual production may not have been any too large, but competition to supply such demand as there was has been almost without precedent, and this doubtless has contributed

largely to the demoralization, and in some instances to the absolute exhaustion of capital. Unfortunately, there is no immediate prospect of any change for the better. Competition is as strong as ever, and although there may be no money in anything that can be had at current prices, yet they all want the order, and in trying to secure it still lower quotations are made, until it seems as though there is no bottom to anything. The month upon which we have just entered may possibly bring about a change for the better, but the trade want to see it before they will believe it.

Pig Iron.—Quotations have changed very little during the past six months, although there has been some variation in selling prices. Some, for instance, would hold on to their Iron at a price which buyers could not be induced to pay, until, either from the need of money or from sheer desperation, or some other cause, it would finally be thrown overboard at figures far and away below what was originally asked. This, of course, refers chiefly to Iron from the South, although local furnaces have in some instances been caught in much the same way. But taking the entire six months it is not likely that prices have gone either higher or lower than \$14.50 @ \$15.50 for best brands of No. 1 Foundry, \$13.75 @ \$14.25 for No. 2, and \$12.75 @ \$13.25 for Gray Forge, and \$12 @ \$12.25 for Alabama Irons. Ordinary grades (or in the case of forced sales) may have sold at 50¢ @ 75¢ less, but the figures named give a fair average for the various brands of standard Irons during the period under review. Stocks have decreased during that period to the extent of about 125,000 tons, and more remarkable still, the output has been larger by about 250,000 tons than during the previous six months. It seems, therefore, that the country has consumed upward of 350,000 tons more Pig Iron than during the previous six months, while prices have been weak and demoralized during the entire period, and even yet give no definite promise of improvement. The only explanation seems to be that Southern furnaces have been crowding in their Iron regardless of cost, and in the struggle for supremacy prices have been forced to unprecedented and perhaps unwarranted figures. For the time being Pennsylvania furnaces seem to be getting the upper hand, and if reports are true that a number of Southern furnaces are going out of blast there is a fair chance for a better market in the not very distant future. The supply is not in excess of current requirements, and if there should come a better demand prices would quickly respond. Taking everything into consideration, the chances appear to be favorable to the selling interests, and if nothing unforeseen occurs to give things another setback better prices may be looked for within the next 60 or 90 days.

Steel Billets.—There is not much to say in regard to Billets, except that they have been held at comparatively steady prices during the past six months. The year opened with prices at about \$24, which is also the nominal quotation today. During the second month of the year they were sold as low as \$23.25, delivered Schuylkill Valley and equivalent points, subsequently advancing to about \$24, becoming dull and weaker during the sixth month, and closing offered at \$23.50. It is difficult to say what will be done during the balance of the year, but with so many mills

shutting down, it is pretty certain that the supply will not be at all what it has been during the earlier portion of the year. Consumers will, of course, shut down, too, but all the same, the chances are not strongly in the direction of either excessive supplies or lower prices. Something will depend on Pig Iron and other items of cost, but making all due allowances, it is not likely that Billets will go below \$23, while \$24 @ \$25 would be easily reached—providing there was any delay in starting up the works, or if consumption showed an unexpected increase. For the present, however, buyers are not bidding very close to the market, the disposition being to wait and see how things are likely to shape themselves a little later on. Orders could easily be placed at about \$23.50, delivered, but buyers are not very sure yet whether they want them at \$23 @ \$23.25, consequently bids are hard to draw out.

Finished Material.—The demand for Finished Material has not been what the trade expected, although, in the aggregate, it was not much below the largest six months' business of which there is any record. The great disappointment has been in regard to prices, which have receded from one month to another, without even an attempt at a reaction. Pittsburgh has been a more aggressive competitor than ever before, and to that fact is attributed the complete and general demoralization in prices. The most notable orders given out during the period under review were those from the Cramp shipyards, which, however, were largely secured by nearby mills, more than 35,000 tons out of the 50,000 tons being taken by mills at Chester, Harrisburg, Phoenixville and Pottsville. The Roach Ship Building Company also gave out a pretty large order, which was also taken by the Paxton mill, at Harrisburg. Other important orders that were competed for, such as the one for 6000 tons of Light Plates for Oregon, were secured by Pittsburgh, as well as a similar order for Rochester, N. Y. Pittsburgh also captured one or two large orders for Structural work in New York City, and, in fact, every contract of importance was subject to the sharpest competition ever known. The demand from the smaller trade has been fairly active, and some mills have been kept pretty busy on work of that character, and, on the whole, with comparatively good results. During the early portion of the year everything seemed to be waiting for the Cramp order, on the theory that when the mills got 30,000 to 40,000 tons of orders on their books they surely would begin to quote better prices. The result proved otherwise. The fact that manufacturers were willing to book orders at prices not over 1.7¢, delivered, for a first-class quality of Ship Plate, with deliveries extending all through 1893 and 1894, made smaller buyers determined to get nearer to that figure for prompt deliveries than they had ever been before, and while it is impossible to give exact details, there is no doubt that a great deal of business has been done at 1.7¢ @ 1.75¢, and not a great deal at prices exceeding 1.75¢. More recently an order for about 1000 tons of Tank Plate, under unusually stringent requirements, was placed at less than 1.7¢, delivered, and at this writing, while 1.75¢ would be asked, a desirable order could easily be placed at the lower figure. In Shapes there has also been similar disarrangement in prices, Angles at 1.75¢, delivered; Beams at very

near to that figure, and other articles in proportion. Bars have sold at 1.55¢, delivered, guaranteed as first-class quality, and Steel Bars at still lower figures. What will be done during the balance of the year it is impossible to say, but there is nothing to indicate immediate improvement. The suspension of work during the next two or three weeks may quicken the demand, but orders could be placed to-day at as low figures as have ever been known. But there are no inquiries of any importance, and it is not expected that much new business will be forthcoming during the month upon which we have just entered. The shipyards are beginning to take deliveries on the orders above mentioned, and while it will help the mills in some of their departments, there is still plenty of room for other work, which would be gladly accepted at the lowest figures we have mentioned.

St. Louis.

(By Telegraph.)

Office of *The Iron Age*,
Bank of Commerce Building,
St. Louis, July 5, 1893.

This city was rudely awakened from its feeling of security by the failure of the Madison Car Company, Madison, Ill., who made an assignment on July 1. Inability to raise money is given as the prime cause of their suspension, Paul A. Fusz, treasurer of the company, has been appointed assignee. The works are expected to open up again on the 10th inst. to complete contracts already in hand, which consist of something like 1000 cars, which will take 60 days to finish. On the face of it this looks like a bad failure, but it is hoped that developments will prove this to be wrong.

Pig Iron.—Trade during the past week was not as heavy as in the week preceding, but was, on the whole, satisfactory. The low-priced Irons, which have been causing more or less uneasiness in the market during the past three months, have nearly all been withdrawn, much to the benefit of the market. Consumers are not running full, and unless the furnaces show some disposition to curtail production, offerings are likely to be largely increased. Furnacemen continue to receive instructions to hold back deliveries, as the situation does not warrant consumers taking Iron too liberally at this time. Prices remain unchanged, but, as above stated, the very low-priced Irons have nearly all been withdrawn from the market. We quote as follows for cash, f.o.b. St. Louis:

Southern Coke, No. 1 Foundry	\$13.25 @ \$13.50
Southern Coke, No. 2 Foundry	12.00 @ 12.25
Southern Coke, No. 3 Foundry	11.00 @ 11.25
Southern Gray Forge	11.25 @ 11.50
Southern Car Wheel	18.25 @ 19.25
Lake Superior Car Wheel ..	17.00 @ 17.50
Ohio Softeners	16.00 @ 17.00
Missouri Charcoal, No. 1 Foundry	13.00 @ 13.50

Bar Iron.—The situation has not improved any since our last report. Some mills are accepting business on the basis of 1.42½¢, f.o.b. cars East St. Louis, while others claim this price is below the cost of production, and are making arrangements to shut down. The immediate future does not contain anything which can be called encouraging.

Barb Wire.—The demand is lighter than last reported, and prices, while unchanged, fail to show any improvement. Painted is quoted at \$2 and Galvanized at 40¢ per cwt. additional, for carload lots to jobbers. The price of Rods continues to sag, which is the only explanation for the naming of such low prices for Barb Wire as are at present prevailing.

Wire Nails.—Mills continue to offer Nails at \$1.50 in carload quantities, but this low price fails to stimulate buying. Jobbers refuse to buy largely and will only specify for their immediate needs. Jobbers quote \$1.60 to the country trade.

Rails and Track Supplies.—There is no demand whatever for Steel Rails. Prices are nominally \$31 @ \$31.50, according to quantity. Track Supplies are also unchanged at the following prices: Splice Bars, 1.70¢; Spikes, 2¢; Bolts, Square Nuts, 2.50¢; with Hexagon Nuts, 2.60¢. Old Rails are freely offered at \$16 without finding any buyers.

Pig Lead.—Since our last report the market has undergone some changes, selling down to 3.15¢, and on the strength of the silver mines shutting down rallying to 3.35¢. Offerings are made to-day at 3.30¢ @ 3.35¢, and while buyers are few, sellers are holding firm at these figures.

Spelter.—This metal fails to show any change whatever. Offerings are limited and sales are few and far between. Nominally the market is 3 90¢, although this price could doubtless be shaded on a large order.

Cincinnati.

(By Telegraph.)

Office of *The Iron Age*, Fifth and Main Sts.,
CINCINNATI, July 5, 1893.

There has been a light volume of business in Pig Iron during the month, but the general conditions do not appear to be any worse. Buyers in easy financial condition have made some purchases on favorable terms, but the exact figures accepted for cash are not made public, while the strong Iron companies in the South are contending for full prices in the regular way. Many in the trade are shaping their business so as to be independent of banking accommodations. Many furnaces are blowing out, but the consumption in this district has been so much curtailed that there is an ample supply of all kinds and grades of Iron for the demand. The transactions during the week have been mainly in small lots and even the aggregate is not large, for buyers see nothing to be gained by anticipating their wants and believe they can buy Iron whenever they require it quite as low in the early future as they can now. Of course, the financial situation dominates the market at present and there is every indication that it will be some months before there will be placid waters in that line. Quotations are as follows:

Foundry.

Southern Coke, No. 1	\$13.00 @ \$13.25
Southern Coke, No. 2	11.50 @ 11.75
Southern Coke, No. 3	11.00 @ 11.25
Ohio Soft Stone Coal, No. 1	16.00 @ 16.25
Ohio Soft Stone Coal, No. 2	15.00 @ 15.25
Lake Superior Coke No. 1	15.00 @ 15.25
Lake Superior Coke No. 2	14.00 @ 14.25
Hanging Rock Charcoal, No. 1 ..	18.50 @ 19.00
Hanging Rock Charcoal, No. 2 ..	17.50 @ 18.00
Tennessee and Alabama Charcoal, No. 1	15.00 @ 15.50
Tennessee and Alabama Charcoal, No. 2	14.00 @ 14.50

Forge.

Gray Forge	10.50 @	10.75
Mottled Coke	10.50 @	10.75

Car Wheel and Malleable Irons.

Standard Southern Car Wheel	16.75 @	18.00
Lake Superior Car Wheel and Malleable	17.25 @	17.50

Chicago.

Office of *The Iron Age*, 59 Dearborn street, }
Chicago, July 3, 1893.

Pig Iron.—The only transactions reported during the past week covered moderate quantities of Local Coke. The full effect of the large contracts placed the previous week has not yet been felt by the Iron trade, as it would require some little time for such information to get disseminated. The influence was perceptible on a few consumers who had heard of the purchases by the agricultural people and deemed it advisable to follow their lead. The market on other classes of Iron has been extremely quiet notwithstanding persistent efforts to make sales both of Southern Coke and Lake Superior Charcoal. The following quotations represent the range of asking prices, Chicago delivery, but they are still subject to concessions in nearly every case for immediate delivery and prompt cash:

Lake Superior Charcoal	\$16.00 @	\$16.25
Local Coke Foundry, No. 1	13.50 @	14.00
Local Coke Foundry, No. 2	13.00 @	13.25
Local Coke Foundry, No. 3	12.75 @	13.00
Local Scotch	14.00 @	15.00
Ohio Strong Softeners	15.75 @	16.25
Southern Silvery, No. 1	@	14.50
Southern Silvery, No. 2	@	14.00
Southern Coke, No. 2	12.75 @	13.00
Southern Coke, No. 3	12.25 @	12.50
Southern, No. 1, Soft	12.75 @	13.00
Southern, No. 2, Soft	12.25 @	12.50
Southern Gray Forge	11.75 @	12.00
Tennessee Charcoal, No. 1	16.50 @	17.00
Alabama Car Wheel	@	18.85
Coke Bessemer	14.50 @	15.00
Hocking Valley, No. 1	16.75 @	17.00
Jackson County Silvery	16.75 @	17.00

Bars.—Season contracts are still being closed by the Implement manufacturers. Some large transactions of this character are pending, which are expected to be settled this week. The general demand is quiet and is likely to continue so for the present. Quotations on Bar Iron are maintained at 1.45¢ @ 1.50¢, half extras, Chicago, and on Soft Steel the usual asking prices are 1.65¢ @ 1.70¢. Store prices are continued at 1.65¢ @ 1.75¢ for Bar Iron, and 1.70¢ @ 1.80¢ for Soft Steel.

Structural Material.—The local dealers are asking a little better prices for Beams from yard, and the price for mill shipment also seems hardly as weak as during the past month. Sales are reported of small quantities only. Mill shipments are quoted as follows, Chicago delivery: Beams, 1.80¢ @ 1.90¢; Tees, 1.95¢ @ 2.05¢; Angles and Universal Plates, 1.75¢ @ 1.85¢. Small lots are selling at 15¢ @ 20¢ @ 100 advance.

Plates.—Very little new business is reported in Plates, with no change in quotations. Mill shipments, Chicago delivery: Tank Steel, 1.75¢ @ 1.85¢; Shell Steel, 2.05¢ @ 2.15¢; Flange Steel, 2.20¢ @ 2.30¢; High Grade Fire Box, 2.75¢ @ 5¢. Store prices are as follows: Nos. 10 to 14 Iron or Steel Sheets, 2.35¢ @ 2.60¢; Tank Steel, 2.20¢ @ 2.40¢; Shell, 2.35¢ @ 2.50¢; Flange Steel, 2.60¢ @ 2.80¢; Boiler Tubes, 67½¢ @ 70¢.

Sheets.—Black Sheets are still quoted at 2.80¢ to 2.85¢, Chicago, for No. 27 Common from mill, but inquiries are light. Galvanized Iron is considerably more active, but prices are a little weaker, and the mill quotation of

70 and 10 % discount for Juniata is shaded on good orders. Sheet Copper is still quoted at 30 and 5 % off for small lots.

Merchant Steel.—Season contracts are fairly numerous, especially among the Plow manufacturers, but general trade is quiet. Mill shipments, Chicago delivery, are quoted as follows: Smooth-Finished Machinery, 1.90¢ @ 2¢; Open Hearth Spring and Smooth-Finished Tire, 2¢ @ 2.10¢; Iron-Finished Tire, 1.70¢; Ordinary Tool, 6¢ @ 7¢; Specials, 12¢ and upward.

Rails and Track Supplies.—The demand for Steel Rails continues only moderate, but with sufficient business developing locally to keep one Rail mill employed. This mill, however, is doing much better in the matter of production than was accomplished during its run last year, so that the condition of trade is really better than would be inferred from the statement that only one mill is running. Prices are unchanged at \$30 @ \$32, according to quantity. Iron and Steel Splice Bars are quoted at 1.60¢ @ 1.70¢; Track Bolts with Hexagon Nuts, 2.55¢ @ 2.60¢; Spikes, 1.85¢ @ 1.95¢.

Old Rails and Car Wheels.—Old Iron Rails are very weak at the nominal quotation of \$17, Chicago. Holders appear to be disposed to part with their stocks if they could get a firm offer. Old Steel Rails are very quiet with \$10, Chicago, the best offer made by Pittsburgh buyers for short lengths; long lengths are worth about \$13. Old Car Wheels are quiet at \$14.50 @ \$15.

Scrap.—This class of old material is still neglected. Selling prices are as follows @ net ton: No. 1 Forge, \$12; No. 1 Mill, \$9; Sheet Iron, \$5; Pipes and Flues, \$7.75; Axles, \$18; Horse-shoes, \$12; Fish Plates, \$14.50; Spikes and Bolts, \$12.50; Cast Borings, \$5.25; Wrought Turnings, \$7.25; Axle Turnings, \$9; Heavy Cast, \$10; Stove Plate, \$8; Malleable Cast, \$8; Mixed Steel, \$9.50, gross ton; Leaf Steel, \$16.

Copper.—Lake Copper is unchanged at 11½¢ for carload lots, but casting Copper is a little weaker and is now quoted at 10.35¢, with a fair demand.

Boston.

Office of *The Iron Age*, 146 Franklin St., }
Boston, July 3, 1893.

The feature in the Iron market this week is the establishment of the fact that there is to be no strike in the Pittsburgh union mills, and indeed some of the mills in other sections. Still it is not yet determined but what there is to be trouble with the laborers in the Mahoning and Shenango valleys. In those mills the Amalgamated Association has failed to come to an agreement with the Iron makers, and it looks to the trade as though there was to be trouble there. But Monday brought word by telegraph that J. Painter's Sons Company's men at Pittsburgh had signed the scale and the works are now assured to run right along. All danger of a strike is ended with this concern for the present. Jones & Laughlins' men, also of Pittsburgh, have signed the finishing scale, and the mills will run for eight days, pending the signing of the Steel scale. This comes through an agreement with the Amalgamated Association, pending some difficulty in fixing the Steel scale at once; but there is very little doubt but what this scale will be fixed, and that all danger of present labor troubles

is at an end. The trade is thus greatly relieved, and business can now go on without interruption.

Pig Iron.—Trade in Pig Iron is rather quiet. The half holiday Saturday and the fact that there was but little interest in trade on Monday caused dealers to close their places of business early and give their attention to the national holiday. The week will naturally be a very quiet one. Quotations are nominally unchanged: Southern Iron, ex dock in Boston is quoted at: No. 1, \$15 @ \$15.50; No. 2, \$14 @ \$14.50; No. 3, \$13 @ \$14. Some trade is noted in Virginia Iron, with the market at \$15.50 for No. 1, and at \$14.50 @ \$15 for No. 2. Pennsylvania Pig Iron is quiet in this market, with the quotations nominally at: No. 1, \$14.50 @ \$15; No. 2, \$13.50 @ \$14; Gray Forge, \$13 @ \$13.50. These prices are for Iron at shipping ports. Spot lots would cost more by the amount of freight and other charges.

Bar Iron.—There is as much trade in Bar Iron as could reasonably be expected, considering the holiday and the state of finances, with the market steady. Quotations are very steady at: New England Old Material Bars, 1.60¢ @ 1.65¢, from mill; from store, 1.65¢ @ 1.70¢; best Puddled Iron Bars 1.80¢ @ 1.90¢ from mill; from store, 1.95¢ @ 2¼¢. Norway and Swedish Bars and Shapes are steady and unchanged at \$65 @ \$67 @ ton from store.

Building Iron.—There is a fair trade in Building Iron since the restoration of confidence in the financial ability of the principal builders here. It now proves that the rumors concerning the standing of these firms were as false as they were damaging. Still the financial uncertainty that is noted in all classes of trade is affecting the building trade as well as others. Enterprises talked about will be abandoned, and even some buildings projected to the extent of having plans drawn and permits obtained are likely to be given up for this season. The fact of the adjustment of affairs at the union mills is not expected to help prices any, to say the least. At present quotations are steady at: Beams and Channels from mill, 1.90¢ @ 2¢; from store, 2.30¢ @ 2½¢; Tees, 2.20¢ @ 2.30¢ from mill; from store, 2.40¢ @ 2.65¢; Angles, 1.80¢ @ 2¢ from mill; from store, 2.25¢ @ 3.35¢.

Steel, Steel Plates and Steel Rails.—The market on Steel is quiet, with a dull trade this week, for the same reasons that the rest of the Iron market is dull. The market looks easier, from the fact that the danger of labor troubles seems to be at an end. Quotations are steady, however, at: Bessemer Steel, 2¢ @ 2.10¢; Tire and Sleigh Shoe, 1.90¢ @ 2¢; Sheet, 2¼¢ @ 2½¢; American Cast, 6½¢ @ 7¢; English Cast, 13½¢ @ 15¢; American Steel Rails, \$29, at mill. There are no new features in the Steel Rail market. Many of the electric roads planned throughout New England have gone no further than the plans. Steel Plates are quiet, and prices are easy, though agents do not admit of lower quotations: Tank, 1.80¢ @ 1.90¢; Shell, 1.85¢ @ 1.95¢; R. fined, 2.05¢ @ 2.12½¢; Fire Box, 2¼¢ @ 2½¢.

Nails.—Trade continues very fair in Nails, though the effect of the holiday is noticed. Prices are quoted at \$1.40 @ \$1.45 for carloads, and at \$1.45 @ \$1.50 for small lots. These are the quotations on Cut Nails, both Iron and Steel. Steel Wire Nails are quoted at \$1.60 @ \$1.70 to the trade here.

Pipes and Tubes.—Trade in Pipe is steady, with a fair amount of business locally. Water works orders are not very plenty. Card rates are still retained, though some concessions are being obtained by buyers of large lots. Boiler Tubes are steady at: 3-inch and over, 67½ % off from list; 2½-inch and under, 65 % off.

Scrap Iron.—The position of Scrap Iron is not very encouraging. Prices are so low that blacksmiths and small machinists will not take the trouble to collect it. When approached by a buyer they say: "Oh, let it lay. It can never be worth gathering up at the present rate!" Only about 50¢ @ 100 lb is all that good No. 1 Wrought can be quoted at, though selected lots and old Horseshoes are quoted at 55¢ @ 60¢. Light Iron is steady, though very quiet, at 33¢ @ 38¢. Machine Shop Scrap is quotable at 30¢ @ 35¢ for Wrought and at 25¢ @ 30¢ for Cast.

Cleveland.

CLEVELAND, OHIO, July 3, 1893

Iron Ore.—The demoralization could scarcely be more complete. It is now given out that even the Ore already purchased will not be sent down. The idea is that it is best to add no entangling features to the already depressed and stranded market, but to wait until August or September, in the hope that by that time the situation will have materially changed. A leading dealer said to-day: "We propose to stop buying, stop shipping, stop producing, stop everything. Let the Ore we have contracted for stay at the mines. We do not require it now, and the money it would cost to bring it here can be used advantageously in other ways. Perhaps by August 15 the situation will have changed to such an extent that we can go ahead again. For the present, however, there is absolutely no need to do anything at all and we are going to stop short." More big mines have shut down during the past week and more are to follow suit this week. Lake freights are growing weaker all the time, and it is no longer difficult to get Escanaba tonnage at 55¢ or Ashland tonnage at 90¢ @ ton, lower lake ports. Just where all this depression is to end is something that Iron men are not inclined to discuss. About 32,000 tons of Ore were sent forward to the furnaces last week, as compared with 20,000 tons for the same week in 1892. The docks are in this way being rapidly cleared of last season's Ore and are not being stacked up with the new output, as in seasons past. "The local dealers will make the present week a continual holiday so far as attempting business is concerned," said an Iron-Ore man to-day. "There's no use trying to sell Ore when no one wants it."

Pig Iron.—The market fails to give the slightest evidence of life. No sales of any consequence whatever are reported, and dealers do not take a very cheerful view of the outlook for the future. What selling has been done—and the amounts involved did not exceed 100 tons @ order—have been on the basis of \$13.25 @ ton for Bessemer Iron. Nothing in the way of business is reported by the dealers in Gray Forge and Foundry Irons. The disinclination of buyers to buy Iron is no more apparent than the indifference of sellers as to whether sales are made or not. All is all it is a waiting situation, with no immediate prospect of a happy

termination. We repeat last week's quotations:

Nos. 1 to 6 Lake Superior Char-	
coal.....	\$16.25
Nos. 1, 2 and 3 Bessemer, @ ton.....	\$13.25 @ 13.40
No. 1 Strong Foundry, @ ton.....	14.00
No. 2 Strong Foundry, @ ton.....	13.00
No. 1 American Scotch, @ ton.....	14.25
No. 2 American Scotch, @ ton.....	13.25
Mahoning and Shenango Val-	
ley Neutral Mill Irons, @	
ton.....	12.00
Mahoning and Shenango Val-	
ley Red Short Mills, @ ton.....	12.25

Nails.—Although there are rumors of rate cutting, dealers quote Wire Nails at \$1.35, Cleveland, in carload lots.

Muck Bars.—Very little business is being done. Quotations for best grades, delivered at buyer's mill, are \$23.25 @ \$23.75.

Scrap.—The market is extremely dull. No business of any importance is reported.

Louisville.

LOUISVILLE, KY., July 3, 1893

There is no buying, owing to money troubles, furnaces desiring cash customers, and few purchasers being able to meet these requirements at the present moment. There is a growing feeling, however, that, owing to the shut down of many furnaces, prices will be stronger, and that it is wise to purchase, and it is believed that this feeling will increase and lead to heavier buying the moment the money market is easier. The position of furnaces is fairly strong, as Iron is not accumulating, and old orders will largely take what has been made, so that even cash customers are somewhat surprised at not having Iron forced upon them. If the leading Southern furnaces decide to close the coming week, unquestionably Iron will be higher, and, as the policy has been for a long time to purchase only from hand to mouth, consumers will be subject to inconvenience to find the Iron necessary for their mixture. If the movement alluded to is accepted the furnaces will be in a position to insist upon a different method of settlement than by long-time paper with interest at less than the same can be discounted for.

We quote for cash, f.o.b. cars Louisville:

Southern Coke, No. 1 Foundry.....	\$12.75 @ \$13.25
Southern Coke, No. 2 Foundry.....	11.50 @ 12.00
Southern Coke, No. 3 Foundry.....	11.00 @ 11.25
Southern Coke, Gray Forge.....	10.50 @ 10.75
Southern Charcoal, No. 1 Foundry.....	15.00 @ 16.00
dry.....	17.50 @ 17.75
Southern Car Wheel.....	11.50 @ 12.50
Spathite.....	

New York.

Office of *The Iron Age*, 96-102 Reade street, {
New York, July 5, 1893. }

Pig Iron.—Current business is very light, and although makers of standard Northern brands acknowledge that they are accumulating Iron, they report that it is confined to the lower grades, and that the Foundry Irons are moving off in a satisfactory manner. Intimations are thrown out that Southern furnace interests may reach some agreement concerning concerted action in reducing output. We quote Northern brands at \$14.50 @ \$15 for No. 1; \$13.75 @ \$14.50 for No. 2; \$12.25 @ \$12.50 for Gray Forge, at tidewater. Southern Iron, same delivery, \$13.75 @ \$14.50 for No. 1; \$12.50 @ \$13.50 for No. 2; \$12 @ \$12.25 for No. 3; \$12.25 @ \$12.50 for No. 2 Soft, and \$12.75 @ \$13.25 for No. 1 Soft. Gray Forge remains \$11.75 @ \$12.50.

Spiegeleisen and Ferromanganese.—The market is absolutely lifeless, with Ferromanganese nominally quoted at \$57 @ \$57.50 for 80 % foreign.

Billets and Rods.—No transactions are reported. We quote, nominally: Domestic Billets, \$23.50 @ \$24, and foreign Billets \$28.50 @ \$29, tide-water; domestic Wire Rods, \$31.25 @ \$31.50 and foreign Rods, \$39.75 @ \$40.

Steel Rails.—Outside of small lots of light sections, at a concession, no business is reported. The quotation remains \$29, at mill or tidewater, for standard sections.

Track Material.—We quote: Spikes, 1.80¢ @ 1.90¢; Fish Plates, 1.45¢ @ 1.60¢; Track Bolts, Square Nuts, 2.30¢ @ 2.40¢, and Hexagon Nuts, 2.40¢ @ 2.50¢, delivered.

Manufactured Iron and Steel.—Business has been light, no contracts of any magnitude having been closed. We quote: Beams up to 15-inch, 1.75¢ @ 2¢; 20-inch, 2.10¢ @ 2.25¢, for round lots; Angles, 1.75¢ @ 1.90¢; Universal Mill Plates, 1.80¢ @ 1.90¢; Tees, 1.90¢ @ 2¢; Channels, 1.85¢ @ 2¢, on dock. Steel Plates are 1.70¢ @ 1.90¢ for Tank; 1.95¢ @ 2.10¢ for Shell; 2¢ @ 2.15¢ for Flange, and 2.50¢ @ 2.80¢ for Fire Box, on dock; Refined Bars are 1.60¢ @ 1.9¢, on dock, and Common 1.50¢ @ 1.60¢; Soft Steel Bars are 1.50¢ @ 1.60¢; Scrap Axles are quotable at 1.90¢ @ 2.10¢, delivered; Steel Axles, 1.85¢ @ 2¢, and Links and Pins, 1.85¢ @ 2.10¢; Steel Hoops, 1.80¢ @ 1.90¢, delivered; Cotton Ties, 80¢ @ 85¢ @ bundle, at mill.

Old Material.—We quote Old Iron Rails at about \$15 @ \$15.50; Old Steel Rails, \$13 @ \$13.50; No. 1 Wrought Scrap Iron at \$15 @ \$15.50, and Car Wheels at \$11.50 @ \$12.

Financial.

The silver question has been of dominating interest during the few active business days of the week just elapsed. After a sensational decline of silver certificates to 62¢ the market rallied from the panic price. Special interest attaches to the forthcoming Government purchase of silver for the July allotment. The calling of an extra session by the President was received with much satisfaction in financial and business circles, since it is the general conviction that it means the prompt repeal of the Sherman act. While it has created a better feeling, and some oversanguine financial writers have begun to speak of the late depression, it must be remembered that the restoration of confidence is a process of slow growth. The weekly statement of the New York City banks shows an increase in the loans from \$406,256,100 on June 24 to \$413,650,400 on July 1, with the deposits practically stationary at \$398,064,100 and \$397,979,100 on the respective dates.

Money has continued tight during the whole of the week, and on Friday the strain, which was becoming serious, was relieved somewhat by the taking out by some of the leading banks of several millions of dollars of Clearing House certificates, making the quantity outstanding on Saturday \$18,800,000.

Foreign exchange has been unsettled during the week and there has been considerable talk of a resumption of gold imports.

There has been practically nothing doing in time money and the market

for commercial paper has remained nominal.

Naturally, a very wretched showing is made in what may be called the business mortality statistics for the first half of the current year. Dun's agency make the number of failures for the first six months of 1893 6401, with liabilities of \$168,926,839, against 5503 failures and \$62,273,680 liabilities during the first half of 1892, and 6074 failures, with \$92,416,267, during the corresponding period of 1891. The record of the second quarter of this year is particularly alarming, the liabilities in 3199 failures being \$121,582,539.

Bradstreet's figures are somewhat different, being as follows for 15 years:

Failure statistics for the United States for six months during 15 years are as follows:

	Number failures.	Total liabilities.	Per cent. of assets to liabilities.
1893.....	6,239	\$170,860,222	61
1892.....	5,361	56,535,321	51
1891.....	6,037	92,370,282	58
1890.....	5,466	62,867,962	48
1889.....	5,918	67,411,711	48
1888.....	5,254	64,987,622	53
1887.....	5,072	52,778,829	48
1886.....	5,461	53,241,431	48
1885.....	6,106	68,570,505	48
1884.....	5,444	124,104,357	53
1883.....	5,296	73,594,205	54
1882.....	3,649	52,838,289	53
1881.....	3,256	39,533,705	50
1880.....	2,99	31,837,303	46
1870.....	3,810	60,508,758	49

For the first quarter the liabilities were \$39,424,144 and assets \$20,160,741, while for the second quarter of the current year the liabilities in 3170 failures rose to \$131,436,078, while the assets were only \$85,211,072.

Territorially distributed failures were as follows:

	Number.	Assets.	Liabilities.
United States—			
Eastern.....	919	\$ 6,689,403	17,346,440
Middle.....	1,299	30,280,873	52,415,329
Western.....	1,633	30,564,991	40,765,888
Northwestern..	650	16,609,726	29,154,069
Southern.....	1,060	11,428,867	18,297,454
Pacific.....	539	9,328,500	12,048,872
Territories....	139	469,453	832,270
Totals.....	6,239	\$105,371,813	\$170,860,222

The heaviest increase in liabilities is in New York and Pennsylvania, where the increase, as compared with the total indebtedness of those failing in six months of 1892, is \$37,000,000, a little more than one-third of the total increase this year over last, which is \$114,325,000. The relatively next heaviest increase as compared with last year amounts to \$28,000,000 in round numbers, and is accounted for by larger indebtednesses in Ohio, Indiana, Michigan, Illinois and Missouri, among Western States, while third in order is the increase in liabilities this year over last of \$23,000,000 in four Northwestern States—Wisconsin, Minnesota, Iowa and Nebraska. The larger portion of the \$9,000,000 increase in Southern States this year is largely accounted for in North Carolina, Tennessee, Georgia and Arkansas, while a similar increase in amount is explained on the Pacific coast by augmented totals in California, Oregon, Washington and Idaho.

The iron and steel manufacturing concerns make a relatively poor showing, there having been 18 failures with \$11,620,000 liabilities in the first half of 1893, against 8 with \$1,257,000 in the same time in 1892, 9 with \$2,012,000 in 1891 and 1 with \$174,000 in 1890. Hardware and metal goods are given as 6 with \$1,190,000, as compared with 3 with \$620,000 in 1892.

In all 175 banks, owing \$43,200,000, failed in the first six months of 1893, as compared with 32 banks with \$5,955,000 liabilities during the same time last year.

Metal Market.

Copper.—The buying has been extremely conservative and the demand has continued tame in the face of the report that nearly all American producers outside of the Tamarack, Boston and Montana and allied interests have signed the international agreement to restrict production and limit exports from this side of the Atlantic during the balance of the year. In short, the appearances are that there is still more than enough Copper of all kinds to meet home trade and export wants, since consumptive requirements are disappointing as far as volume is concerned, while export buying is tame in all that the term implies. In some quarters 10½¢ is still quoted as being "the market" for Lake Superior Ingots, but a number of transactions involving fair-sized lots have been closed at 10½¢, and the appearances were that more business could have been worked on the same basis at the close of the week under review. Electrolytic Copper is quoted at 10½¢ @ 10½¢, but where other than small lots are involved any price above 10½¢ seems to be strictly the exception. Common casting stock is similarly irregular, with 9½¢ standing as a rate at which round lots may be secured and 10¢ @ 10½¢ the top figures for ordinary jobbing quantities.

Pig Tin.—The winding up of old contracts has been the most conspicuous feature in the speculative branch of the market and the outcome shows that operators on the long side have fared the worst not only on July but on August options. July went as low as 18.85¢ under pressure to realize, and August to 19.30¢ @ 19.35¢ in the face of cable advices indicating some recovery from late depression in London. The momentary suspension of importations due to the imposition of the duty of 4¢ per pound counted for naught as against the weight of surplus supply of about 10,000 tons and possibility of the duty being rescinded at the extra session of Congress. Trade and consumptive demand has been fitful, moderate all told and ineffective as a factor in regulating values. At the close of the week there were open offers to sell at 19¢ net cash, and in some instances bids of 18.90¢ were solicited. August delivery was at about ½¢ per pound premium. The following comparison of movement of supplies and stocks here and in Europe, as bulletined on the Metal Exchange, is particularly interesting:

	June. Tons.	May. Tons.	April. Tons.
Shipments:			
Straits to Great Britain.....	1,900	2,000	1,400
Straits to Continent.....	1,025	400	325
Straits to United States.....	None	None	180
Total from Straits.....	2,925	2,400	2,305
Australia to Great Britain.....	380	150	350
Australia to United States.....	None	None	None
Total from Australia.....	380	150	350
London to United States.....	1,100	3,000	1,770
Holland to United States.....	140	200	160
Total from Europe.....	1,240	3,200	1,930
Consumption:			
London deliveries.....	1,550	1,360	1,330
Holland deliveries.....	700	690	820
United States, excl. Pacific Coast.....	1,400	1,600	1,600
Total.....	3,650	3,650	3,750
Stocks, close of month:			
In London.....	1,807	2,749	3,714
In Holland.....	490	1,200	990
In United States, excl. Pacific Coast.....	9,910	8,347	4,905
Total.....	12,207	12,296	9,609

Stocks afloat:			
For London.....	3,479	2,562	3,552
For Holland.....	1,600	820	960
For United States.....	None	2,355	3,050
Total.....	5,079	5,737	7,562

	July 1.	June 1.	May 1.
Visible supply, 1893.....	17,286	18,033	17,171
Visible supply, 1892.....	12,848	12,333	11,967

Pig Lead.—The real and threatened shut down of silver mines, along with recent clearance of surplus stocks of Lead at Western points, has served to stiffen prices considerably. At the present time 3.55¢ would appear to be a strictly inside price, and 3.60¢ stands as the general quotation for common Western, while offerings of other than comparatively small lots for prompt delivery or immediate shipment are extremely reserved. There is no inclination to entertain offers on August or later deliveries except at very stiff prices. Single carloads have realized as high as 3.55¢, but nothing above that has yet been paid, and buyers generally seem to be quite as reserved with their bids as sellers are in the matter of offering. Large consumers seem to be well supplied from deliveries making on contracts closed last month, when prices were on the declining scale. On the moderate offerings at the close, 3.60¢ upward was asked.

Spelter.—Ordinary Western brands have been offered quite freely at 4.20¢ landed here, but, aside from single carload lots occasionally, no sales were effected and the market remains in a dull flat condition. Orders were solicited for larger quantities at 4.15¢, with anything but satisfactory results. As the above outline would indicate, the market is still in poor shape and the undercurrent is highly suggestive of weak position.

Antimony.—The demand has continued slow and the market is still rather weak, with sellers of wholesale quantities at about 9½¢ for Hallett's, 10½¢ @ 10½¢ for L X, and 10½¢ for Cookson's.

Tin Plate.—Slow trade and irregularity of prices, with the tendency in buyer's favor, is about all that can be reported. Interest in future deliveries continues extremely tame, despite inducements that have been offered in the shape of modified prices, and spot stock has been taken in very small quantities, although cheaper nearly all along the line at present than for some time past. Stocks here are liberal and the assortment is remarkably good. Spot quotations are as follows: Coke Tins—Penlan grade, IC, 14 x 20, scarce; J. B. grade, do., \$5.40; Bessemer full weight, \$5.30; light weights, \$5 @ \$5.02½ for 100 lb, \$4.90 for 95 lb, \$4.85 for 90 lb. Siemens Steel scarce. Stamping Plates—Bessemer Steel, Coke finish, IC basis, \$5.60; Siemens Steel, IC basis, \$5.65; IX basis, \$6.85. Charcoals—Melyn grade, IC, \$6.35 @ \$6.37½; Crosses, \$8; Allaway grade, IC, \$5.60; Crosses, \$6.80; Grange grade, IC, \$5.70; Crosses, \$6.85. Charcoal Terness—Worcester, 14 x 20, \$5.70; do., 20 x 28, \$11.35; M. F., 14 x 20, \$7.25; do., 20 x 28, \$14.50; Dean grade, 14 x 20, \$5.30 @ \$5.37½; do., 20 x 28, \$10.50 @ \$10.60; D. R. D. grade, 14 x 20, \$5.10 @ \$5.15; do., 20 x 28, \$10.20; Alyn, 14 x 20, \$5.32½ @ \$5.35; do., 20 x 28, \$10.40; Wasters—S. T. P. grade, 14 x 20, \$4.87½; do., 20 x 28, \$9.25; Abercarne grade, 14 x 20, \$4.87½; do., 20 x 28, \$9.20.

The Mount Hope Mines, in New Jersey, of the Lackawanna Iron & Steel Company have been closed down.

British Iron and Metal Markets.

[Special Cable Dispatch to The Iron Age.]

LONDON, WEDNESDAY, July 5, 1893.

The metal markets have been seriously disturbed by the crisis consequent upon closing Indian mints. Pig Tin was affected the greatest by the fall in price of silver and Straits exchange, prompts going as low as £83. 5/, and three months' futures to £81. 15/, on comparatively small transactions. Cash Tin has been sparingly offered, but the few sales made had a depressing effect in the absence of support to the market. Toward the end of the week the market became firmer owing to better prices for silver and improvement in India quotations, but eased off again on Tuesday to £84. 5/ for prompts. On Wednesday there were transactions at £83 15/ @ £84 for prompts, and futures were nominal at £82. 15/ @ £82. 17/6 for three months.

Copper declined under the influence of free selling, chiefly for American account, and the failure of a local dealer. Merchant Bar prompts went as low as £43. 2/6. Lowness of prices attracted buyers and caused a slight turn for the better in prices. During the past few days there has been very good buying of prompts and forwards. Closing prices were £43. 2/6 @ £43. 10/ for Merchant Bar prompts, £43. 15/ @ £43. 17/6 for futures and £48 for Best Selected English. Chili charters during last half of June were 1600 tons. Spot stock in Europe decreased 546 tons during the month, but the visible supply shows 943 tons increase for last half, and 4 tons increase for the entire month. Sales of furnace material include ordinary Montana Matte at 9/1½, and 1200 tons Argentiferous ditto on private terms.

The Tin-Plate market is weak and dull. Purchases have been confined to small lots for immediate shipment. Dealers are very cautious, owing to weakness in Pig Tin and general uncertainty. Sellers are more pliable. On Coke Plates prices in Swansea average 2 pence lower. Black Plate remains very quiet. A new works is being erected at Llawellyn. Liverpool prices are as follows:

IC Charcoal, Alloway grade.....13/0 @ 13/6
IC Bessemer Steel, Coke finish.....12/0 @ ..
IC Siemens.....12/3 @ ..
IC Coke, B. V. grade, 14 x 20.....11/9 @ 12/
Charcoal Terne, Dean grade.....11/9 @ 12/

Pig Lead market has been more active and the market is stronger at £9. 17/6 @ £10 for Soft Spanish.

Spelter has been quiet and prices are easier at £17. 12/6 for Ordinary Silesian.

Pig Iron warrants have averaged a shade lower, on very moderate business, Scotch selling at 41/7 @ 41/8, Cleveland at 35/ and Hematite at 44/9. There has been no change in the market for makers' Iron or in manufactured Iron

or Steel, aside from an advance to £3. 16/3 in most sellers' prices for Steel Rails.

Pittsburgh.

(By Mail.)

Office of The Iron Age, Hamilton Building, }
PITTSBURGH, July 3, 1893. }

The closing week of June was perhaps the quietest of any preceding week during the half year just closed. No buying is being done and nearly all the mills closed down on the night of June 30, for stock taking and repairs and to await a settlement of the wage scale. As announced elsewhere, the Iron scale has not yet been arranged, but indications point to a settlement at the next meeting, to be held in this city on Saturday, July 8, at 2 p.m. The Amalgamated Association will agree to a scale based on \$5 per ton for boiling and reductions ranging from 7 % to 15 % in the finishing departments. A number of concerns have already signed the scale, and these will continue in operation right along. Other signatures to the scale will doubtless be made before this week is out. The Sheet manufacturers and the workmen have agreed upon a scale which is practically the same as the one in force last year. The adoption of a scale governing wages in Sheet mills will have an important bearing on the situation, as it means that a large number of mills will be kept in operation that otherwise would have been idle. A number of these concerns have puddling plants and turn out Bars and other shapes, and these departments will be operated, paying wages called for by the Iron scale just expired until a wage scale for 1893-94 has been adopted. With the different wage scales all arranged for the coming year, it is the general belief an early improvement in the business situation would result. Already there are slight indications of improvement in the financial situation, and the action of the President in calling an extra session of Congress early in August is heartily indorsed by the business interests of this city. Prices during the week have shown no material change and are merely nominal, as actual transactions are very few. The action of the Illinois Steel Company, in taking up the use of West Virginia Coke has been discussed a good deal here during the week. It is the impression that this action will be taken by other concerns and that material reductions in the price of Connellsville Coke will have to be made if the operators wish to avert such a course on the part of the furnace interests.

Ferromanganese.—In the absence of sales we make nominal quotations of \$57.50 @ \$58 for 80 % domestic, f.o.b. cars Pittsburgh.

Plates—The market is very quiet, although it is expected that some contracts which have been held in abeyance will be placed this month. Although the demand for Tank Steel is fairly active, it is being shaded considerably more than the other grades, which are in light demand. We quote as follows: Tank, 1.50¢ @ 1.60¢, according to order; Shell, 1.70¢ @ 1.80¢; Ordinary Fire Box, 2.25¢ @ 2.50¢; Special, 3¢ @ 3.50¢; Flange, 1.75¢ @ 2¢.

Muck Bars.—No. 1 grade of Muck Bars is offered at \$23 50, delivered at buyer's mill, and it is intimated that this price has been shaded considerably in recent transactions where the seller was pressed for money.

Structural Material.—The prices during the past week or ten days have been a little better, due, probably, to the fact that customers were a little fearful of a protracted shut down. Considerable complaint is heard about the way specifications are being held back on orders booked some months ago. The mill of the Columbia Iron & Steel Company, at Uniontown, Pa., has been closed down for repairs and to allow an adjustment of the wage scale. Jones & Laughlins, Limited, and the Homestead Steel Works will likely continue in operation right along. We quote as follows: Beams up to 15 inches, 1.55¢ @ 1.65¢, f.o.b. cars Pittsburgh. Angles and Universal Plates, 1.60¢ @ 1.70¢; Tees, 1.75¢ @ 1.85¢, and Z-Bars at 1.65¢ @ 1.70¢.

Bars.—Mills in the Pittsburgh and the Valley districts are largely closed down for repairs and stock taking and to await a settlement of the wage scale. An exception in this city is the plant of the J. Painter & Sons Company, who will continue to run, the firm having signed the scale subject to any changes, that may be made when it is finally adopted. In the Mahoning Valley the shut down may be a prolonged one, as no conference has yet been held between the Valley mills and the Amalgamated Association. A settlement of the Iron scale at Pittsburgh would do much to bring about a settlement in the valleys. We quote Steel Bars at 1.50¢ @ 1.55¢, half extras, at mill. In the Mahoning Valley Bars are held at 1.40¢ @ 1.42½¢, half extras, at mill.

Coke.—The paths of the Connellsville Coke operators are not strewn with roses just now. For some time past the demand for Coke has been steadily falling off, while prices, too, have declined to considerable extent. The action of the Illinois Steel Company in contracting for a large supply of West Virginia Coke for the last half of the year will do much to further depress the situation. This contract has been filled heretofore by the H. C. Frick Coke Company. The detailed report of the operation and output of the region for the week ending Saturday, June 24, shows 11,824 ovens in blast and 5512 idle, with a total estimated production of 108,120 tons. Compared with the production of the previous week this is a decrease of 5557 tons. This is the lowest figure the production has reached since last September, when the water famine curtailed the output. We quote Furnace Coke at \$1.45 @ \$1.50 in tons of 2000 lb., f.o.b. cars in Connellsville region.

(By Telegraph, July 5, 2 p.m.)

Pig Iron.—It would be hard to imagine a worse condition of affairs than exists just now in the Pig-Iron trade. There is no buying being done, and with production going steadily on, stocks are being increased and prices are showing a much weaker tendency. The outlook is not encouraging, as consumption during July and August will be very much restricted on account of so many mills being idle. While a good many furnaces both in the Pittsburgh and Valley districts have considerable product sold ahead, buyers are insisting that shipments be delayed until they can get in shape to take the Iron. Prices quoted are merely nominal, as

there are no sales being made on which to base quotations.

Neutral Gray Forge....	\$12.00 @	\$12.25, cash.
All-Ore Mill.....	12.00 @	12.25 "
No. 1 Foundry	13.50 @	13.75 "
No. 2 Foundry	12.50 @	12.75 "
Charcoal Foundry No. 1	17.00 @	18.00 "
Charcoal Foundry No. 2	16.50 @	17.00 "
Bessemer Pig.....	13.15 @	13.25 "

Billets.—There is nothing doing, and prices are merely nominal at \$21.25 @ \$21.50. Considerable Steel that was to be taken out before July 1 has been held back by request of buyers, and consumption will be very light this month on account of restricted operations among Wire, Wire-Rod and Wire-Nail mills. We are not advised of any transactions during the week.

A Combination Among Southern Coal Interests.

The chief producers of Southern coal are the Tennessee Coal & Iron Company and the Sloss Iron & Steel Company. Their output aggregates approximately 2,500,000 tons per year. It will be remembered that at the time the De Bardeleben and Tennessee Coal & Iron interests were united an effort was made to include in the combination the Sloss Iron & Steel Company. The failure was due to the refusal of the latter organization on the ground that their mines, furnaces, plants and other possessions had been handled much more intelligently and conservatively than those of their competitors; that their properties had been constantly improved and were in a condition to return the maximum revenue from the minimum of expense, while the others had been allowed to run down.

One of the conditions which it was purposed to bring about was the combination of the coal interests of these various organizations. The failure to consolidate was followed by a cutting of coal rates. As a result prices, which a number of years ago ruled at about \$1.10 per ton, have averaged 90 cents during the past year. Even at this figure there is a profit in the coal business ranging from 5 to 18 cents per ton.

During the past two or three weeks representatives of the Sloss and Tennessee companies have met in conference, with a view of forming a working agreement that would prevent the cutting of prices. Negotiations have reached a stage where it can be said that certain essential features of the proposed plan have been agreed upon. This plan is yet more or less indefinite. In a general way it will embrace a working agreement based upon a division of territory, which in turn will be based upon the past operations of the respective companies. The railroad tonnage is the chief factor in the trade outside of the consumption which each company makes of its own coal for furnace purposes. This will be taken care of in a way that will also apportion the line trade of these various railroads.

It is intended to advance the price of coal to \$1.10 a ton. This, on the total annual output, will mean an increase in net revenue of about half a million dollars.

We are informed that negotiations will in all probability be concluded this month. The months of July and August in each year comprise the contracting period. Consequently it will be necessary to reach a tangible conclusion before the summer is over.

Canadian Notes.

The new car works at Amherst, N. S., turned out their first railway carriage the other day.

The press of Hamilton is steadily using its influence against municipal assistance being given to the proposed smelting works there.

J. Harris & Co., Limited, St. John, N. B., though they have disposed of their car wheel, foundry and machine business to Rhodes, Curry & Co., Amherst, N. S., are still proprietors of the Portland Rolling Mills, on the harbor of St. John. These they have enlarged and improved.

The binder twine business is in something of a tangle this year in Canada. Last year the Consumers' Cordage Company were, with unimportant exceptions, the only manufacturers in this country. Their virtual monopoly created a good deal of discontent among the farmers, who, through some of their representatives, two sessions ago, made quite a set against the duty, but the Canadian Government gave no relief at that time. This threw the farmers on the principle of self-help, and an association of them, called the Patrons of Industry, formed a joint stock company and built new cordage works at Brantford, Ont. While their idea was in its inception stage, the Government of Ontario concluded to soothe the farmers for the disappointment caused by the refusal of the Canadian Government to remove or lower the duty. It introduced machinery for the manufacture of binder twine in the Ontario Central Prison at Toronto, hoping, with the element of free labor, to get the price down low enough to make itself solid with the farmers. But here its plans and those of the joint stock company in question crossed purposes. One would throw in the labor the other the profits. To further complicate matters the Canadian Government, in the last session of Parliament, yielded so far to the movement against the duty as to reduce it by one-half. All these influences have had a melting effect on prices. The Central Prison stock is distributed without the aid of dealers, so, for that matter, to a very large extent, is the Consumers' Cordage Company's stock. The Patrons' Company are not quoting their prices publicly. Prices were never so much in favor of the buyer as they are now.

There are still some advocates of an export duty on nickel ore. Those unfaltering believers in protection would prefer to have our mines closed rather than see labor in any other country kept busy upon the product of these mines.

It looks as if Toronto were to have a new rolling mill in the near future. Machinery formerly in use in a mill at Norwich, Conn., has already arrived for the equipment of one.

Binding twine machinery is being put in the Kingston penitentiary.

The Dewey Nail Company, Palmer, Mass., are starting a branch of their works at Port Hope, Ont.

The crude petroleum industry is depressed, refiners holding off the market at Petrolia, while producers are offering at \$1 per barrel. This is partly the result of changed conditions of distribution which have the effect of a lowering of the tariff.

The Central Bridge & Engineering Company, Peterborough, Ont., have been awarded the contract for building the new Union Station in Toronto.

The Brantford works of the Massey-Harris Company, manufacturers of agricultural machinery and implements, are being enlarged to employ 500 men.

Belleville, Ont., is smitten with the ambition, which now seems infectious among our cities, to be the seat of a smelting industry.

The Sudbury Nickel Mine Company held their annual meeting at the beginning of the month in Berlin, Ont.

The Chown-Cunningham Company, at Kingston, have sold out their foundry plant there to the Gill-Smart Mfg. Company of Brockville. The new proprietors intend to carry on operations at both points.

This country is affected by the financial stringency in the United States in the wheat and lumber trades and in some minor relations. The forced realizing in wheat carried on in Chicago brought the price down on us as it did on other sellers of wheat, and the big lumber trade done from this side with buyers in the United States has not nearly all been paid for. The carrying of shippers is therefore rather heavier upon our banks than it commonly is at this season. The banks have been careful, but have also been steady supporters of every well managed mercantile or industrial interest, and have now much more of their reserves engaged in this country than they had last spring. For our own wants they have brought in considerable proportions of the amounts carried in New York, which has proved a very convenient and profitable point for the employment of reserves. In a time when their deposits are large the banks naturally aim to keep reserves large, and therefore welcome such opportunities to place them in call as New York has afforded.

There was some expectation that the duty would be taken off copper smelted in the United States from Canadian ore. At present the reimported product of our own ore has an advantage of one-half the duty in its favor, it coming in for 5 per cent., whereas the product of foreign ore is taxed 10 per cent.

The impression has been general that Krupp at Essen is the greatest producer of crucible steel in the world. It is probable, however, that Park, Brother & Co. of Pittsburgh may justly lay claim to that title. Krupp, we understand, has 500 pots in which he melts four heats daily of 90 pounds, which would give him, with 275 working days, about 23,750 net tons annual product. The Park concern have 306 pots, averaging daily six heats of 95 pounds, running 300 days per year, which makes their annual product close to 35,000 tons.

The Minnesota Iron Company, who control the mines of the Vermilion range, have passed their dividend. A circular to the stockholders gives a good statement of the condition of the company.

The creditors of the Belleville Steel Company, Belleville, Ill., are considering the question of accepting 8 per cent. preferred stock for their claims.

HARDWARE.

The Retailer's Opportunity.

IN THE PRESENT financial condition of the country complaints are frequently heard of the difficulty of making collections, and many manufacturers and wholesale merchants are a good deal inconvenienced, if not positively embarrassed, by the tardiness of their customers in the matter of remittances. This perhaps in many cases cannot be avoided, as retail merchants find it a difficult matter to collect their accounts, inasmuch as their trade is affected by the conditions which prevail so generally in the financial centers.

In many cases, however, retailers are not directly or very seriously affected by the financial distrust which prevails in other parts of the country, and by giving careful attention to the matter of collections, and by a little special effort in this direction they might be enabled to make prompt payments for their purchases. In this connection it should be remembered that at a time like the present the prompt payment of bills on the part of retailers who come directly into contact with the consumers will do something toward relieving the stress of the situation, and will put the large distributors of goods and the manufacturers in a more easy financial position. Something will thus be done toward improving the commercial situation and bringing about a more satisfactory condition of things.

There are many retail houses who take a commendable pride in meeting their obligations promptly and paying their bills as soon as they are due. This class of purchasers are, it is needless to say, regarded with more favor by those from whom they buy than others in the trade who are careless in this matter, letting a ten-days' invoice run for 20 or 25 days, and making a tardy remittance two or three weeks late for goods purchased on 30 days' time. Prompt payment is recognized as doing much to make the purchaser solid with the seller and entitling him to close figures, the best attention and any special favors which may reasonably be expected.

At the present time and during the past month or two we know that some retail houses have found it necessary to make unusual efforts to settle their invoices on maturity, but they have regarded it as a matter of pride and almost of honor to send their drafts as usual when the account has become due and payable. If they have not in all cases been able to do this they have sincerely regretted it, but their

regret has been tempered by the reflection that they used every effort and were prevented only by the very exceptional financial conditions existing.

We are led to refer to this matter to impress upon retailers throughout the country that the present financial stringency gives to them an opportunity which is not afforded in times when money is easy. Promptness in payment, always appreciated, will be doubly appreciated now, and the heart of the jobber or manufacturer will be warmed toward the retailer whose remittances come on time.

Condition of Trade.

THE PAST WEEK, with the turn of the half-year and the national holiday, has naturally had but a limited volume of business, and July opens with the usual midsummer inactivity in trade. For the past few weeks manufacturers have been preparing for the usual shut down for a longer or shorter time in order to make repairs and to put things in shape for future operations. Travelers also are nearly all at home, and merchants generally are refraining from pressing sales. In a week or two it will be feasible to compare the aggregate of the six months' business with that of previous years, and it is hoped that the result will not be altogether unsatisfactory. Little of importance in the matter of prices has developed since our last report, but while the market is not characterized by a strong tone there have been comparatively few open declines. The large trade and manufacturers are feeling the effect of the disturbed financial conditions which prevail, but throughout the country generally a fairly satisfactory business is being done by the smaller trade.

Careful inquiry among retailers, as well as advices from commercial travelers who have recently been in close contact with them, develops the fact that in many parts of the country, in the smaller towns and villages especially, retailers are not feeling the depression which exists in many of the larger centers of trade. Reports indicate that their business during the past half year has been fully up to the average, and while there is some complaint in regard to collections it is evi-

dent that many of them are suffering little from this cause. As an illustration we give the following extract from a letter from a representative house in Western New York:

The financial disquietude of the West and in the cities of the East has not as yet reached the country towns of Western New York, and we are living in hopes it will not, as our banks are not speculative banks and have not been obliged to call in their loans, but are very careful in making new loans. Ours being a farming country, is a little depressed on account of the low price of wool and other products, and collections are slow.

Similar advices come to us in the following communication from a Hardware firm in one of the prominent manufacturing cities of Connecticut:

We are fortunate to live and do business in a very conservative and healthy community. Financially, we have as yet felt little of the effects of the monetary disturbance prevailing at the present time. Our manufacturers are all sound and able to carry on their business without outside aid as to money, and up to this time they have all continued to manufacture goods and keep their hands employed. Our merchants have had a very successful season so far, and very little complaint has been heard from them. Taking all together we should hardly know there was a scarcity of money, except from reading the newspapers. Our local banks have funds at their command equal to any demand that may be made upon them for local business. Building is somewhat held back by lack of funds in savings banks, as out-of-town savings banks are not loaning money here so freely as last year. Yet a drive around our little city will show at least 60 new houses being built. If the situation grows no more serious than at the present time our city will feel very little of its effects.

In the reports which are given below our readers will find a comprehensive view of the conditions which, according to the views of our correspondents, who are exceptionally qualified to write on the subject, prevail in the different trade circles.

Chicago.

(By Telegraph.)

A period of dullness has set in in Hardware circles, which is perceptible in every establishment. Orders are numerous enough, but they are for very small quantities, indicating that

retail merchants are merely purchasing to cover absolute wants. The quietness is felt in all branches of the Hardware trade and affects all kinds of goods. Prices show no material change. Collections are not improving.

St. Louis.

(By Telegraph.)

The general depression in business caused by the financial stringency is being felt in the Hardware trade. Sales for the month of June in some cases compare rather unfavorably with the same month one year since. Orders now being received from large buyers would cause some astonishment if sent in by the same concerns three months ago, and they are daily growing smaller. Prices are not as steady as last reported, which is caused by the throwing of large quantities of goods on the market by factories who are doubtless in need of money. Barb Wire and Wire Nails are being offered at very low prices, and some mills are giving extra discounts to facilitate collections, without, however, improving matters to any extent. The month just closed has been an eventful one in many respects, and it is to be hoped that the present month will not duplicate it.

Cleveland.

THE W. BINGHAM COMPANY.—Considering the general financial disturbances and the approach of the mid-summer vacation season the volume of the trade in this locality is quite satisfactory, and while not all that could be desired is all that could be expected. The feeling of confidence which is so essential to business is growing and its effects are beginning to be appreciable, and dealers are sending in well-assorted orders more freely than for some time past. Country trade in Builders' Hardware is not satisfactory, but the same line is extremely active in the city, where the stringency of the money market does not seem to have affected building. Sales of seasonable goods, such as Refrigerators, Ice-Cream Freezers, Screen Doors, Screen Windows, Gas Ranges, &c., are considerably in excess of last year's, and Bicycles continue to receive much attention from the retail dealers, although the effect of the reduction in price on some defective Wheels is noticed. Many dealers are as yet without a supply of Wire Cloth, and it begins to look as if they will be unable to obtain it this season. This will doubtless have the effect of inducing them to place their orders this fall for shipment early in the winter, and it is not likely that next season will see a recurrence of this season's trouble in this respect. Local stocks of Cloth are light and the assortment is broken, and sales are at prices ranging from $1\frac{3}{4}$ to 2 cents per foot.

The Wire mills are filling orders more promptly, and the demand for this class of goods is lighter than for some time past. Prices on Wire re-

main the same, and no immediate change is anticipated. Wire Nails are firm at \$1.50, and Cut Nails are sold at \$1.30 from stock. Scarcity of material has caused an advance of 50 cents per dozen on Screen Doors, and the orders for these goods continue quite numerous. On staples a weaker tone had developed, and lower figures have been quoted on several lines. A noticeable feature of the trade is the entire absence of speculative buying, the disposition to purchase for immediate wants only generally prevailing. Orders for Elbows, Sheet Iron, &c., are coming in quite freely, and are generally satisfactory as to size and price. On these goods many merchants ask for later dating than has been customary in the past. Collections continue very poor, and some accounts that heretofore have been considered first class are dilatory, and a great deal of paper is offered by firms who have never before had any difficulty in paying cash. While the outlook for fall trade does not appear so gloomy as it did a few days since it is the general impression that the usual lull will continue a month or two later than last year.

Baltimore.

CARLIN & FULTON.—This would be a wonderful city were it unaffected by the causes which are stagnating trade throughout the length and breadth of this entire country, and, in sympathy with the conditions prevailing elsewhere, business is dull here, decidedly so, though the situation is emphasized and made seemingly worse by the fact that it is a matter for discussion by everybody at all times and in all places; and yet the gravity of the situation warrants a full discussion, for the question of the national finances overshadows all other interests and really includes them all.

While the telegraph reports the tremendous fluctuations and abnormal rates for money in New York City, this market has fortunately been subjected to no such evils, and the conservatism of our banks has enabled them to supply their mercantile customers for their legitimate wants at rates seldom exceeding 6 per cent.

Trade in our near market would perhaps have been duller than it is were it not that our farmers have enjoyed the benefits of a most favorable season for early vegetables and berries, which have yielded largely and brought most satisfactory prices; but we regret that the wheat which is now being harvested is at the lowest price ever known and far below the cost of its production.

As to our cotton State trade, it is too early for it to begin, and it is a problem as to whether any or much of it will be diverted to other points by the migration of the merchants to the World's Fair. From that section of the country we have never expected much in collections during the summer, and if this monetary stringency were inevitable we do not think it could have happened, as far as the

South is concerned, at a more opportune time; for what accounts have not been paid have generally been closed, as usual, by notes maturing in the fall after the growing cotton crop shall have been harvested, and in the meantime but few new obligations have been created that will mature before then.

Now that the extra session of Congress has been called, we hope by that time confidence will have been restored and business revived. The country demands of its legislators that party lines be ignored in this matter of finance, and the people are not so much interested as to whom the blame for the present condition of affairs rests upon, nor do they care as to what party shall claim and deserve the glory for bringing order out of chaos, but insist that something be done, and that at once.

Louisville.

W. B. BELKNAP & Co.—The all-absorbing topic in the business and financial world is the rapid decline in the price of silver. Before this letter is published great events may transpire which will either afford a solution of the present difficulty or precipitate a further one. It is certainly an evidence of the stability of values in other commodities that they are so little shaken as we see them. This applies especially to Iron and products of Iron.

Bar mills and Nail mills are firm at the figures of the past two months, or suggest some concession so trifling that it is hardly worth taking into account. An offer for 100 to 200 tons of assorted Bars at a cut of \$1 per ton has been refused by several mills, and offers for Black Sheets fare no better.

The Drug business here reports a large trade and better collections than last year. Paints and Oils quite as good.

If one wishes to be fully persuaded that the workingman is not suffering, he should endeavor to get a job of repairs or additions to any building. He will find it difficult to secure any competition on it and is apt to be profoundly thankful in the end to get it done at all. Good wages are being paid and certainly the better class of workmen are well employed all through the country. Up to date there are no mourners going about the streets complaining of lack of work or crying for bread. Sixty-cent wheat means plenty of bread for some time to come.

A good many of the mills thought it likely that they would shut down, but it must be on plea of repairs, for the scale promises to be easily adjusted. Some mills already have arranged with their men to run, subject to subsequent settlement.

The crops never promised better in this State and adjoining ones. Altogether, while we are not exactly happy, neither are we utterly cast down or discouraged. We used to be told, by way of consolation at such times of depressions, that every cloud had its silver lining. This does not help the cause a bit nowadays. The

biggest drops have come in that same silver lining. Give us gold for ours, please.

Boston.

BIGELOW & DOWSE.—Trade still continues well up to that of former years, and dealers in New England can hardly appreciate the dullness reported in other sections of the country.

We are feeling the effects of the tight money market, which has been more marked the past month than during the previous months of this year. Every one is hopeful that when Congress assembles in August it will devise means to bring confidence and relieve the present stringency. Up to the present time there have been but few failures in the Hardware trade, and it is hoped that relief will come in time to prevent any extended losses. The trade is in better condition to meet the present emergency than they have been for several years, and it is a fact that many will acknowledge that there is as much, if not more, profit in years with a declining than in those of an advancing market.

The demand for Window Screens and Screen Doors was never as great as it has been this year, and while the manufacturers might have been able to supply the demand, they have been very much delayed by the short supply of Wire Cloth. At the present time the poorest doors meet with a ready sale and are accepted by dealers who would scorn them at any other time. There are no stocks of Wire Cloth in this market and the price is firm at \$1.75 to \$2.00 per 100 feet. There is some demand for Steel Cut and Wire Nails, but prices are ruling very low.

The present week finds every wholesale Hardware and heavy Hardware house in Boston united in the Boston Iron and Hardware Club. It is hoped that this club will have a membership covering all of New England, and that by meeting monthly and dining together the members will become better acquainted and will devise plans to correct the many abuses that are of long standing in the Hardware trade.

Omaha.

LEE-CLARKE-ANDRESEN HARDWARE COMPANY.—At this writing the Hardware jobbing trade of Omaha may be said to be very fair for this season of the year. There is no particular rush, nor is it up to what it was earlier in the season. At the same time there seems to be no serious cause for complaint. For the present jobbers are following a conservative plan, and are not trying to force trade, the opinion prevailing that it is better to accept a respectable amount of business and be content, and wait for the situation to improve. In the southwestern portion of the State there appears to be some apprehension regarding the grain crop, and for that reason a very conservative feeling has been engendered among the retail trade of that section. It is, however, a conservatism based on good business principles, and jobbers as a rule do not care to break it down and

take the chances of paying for their anxiety to sell goods later on. In the eastern section of the State there is no denying the fact that the recent financial disturbances have had much to do with the moderate business received from these sections. Still the very fact that the retail dealers are following a conservative policy is a very good indication that business will continue fair in spite of any complications that may arise. The local trade is not, as a rule, very active. Omaha has so far been quite fortunate in not being involved in any of the financial disasters that have so recently shaken the credit of other communities, and so far as can be determined at the present time, there is no likelihood of anything of the kind to come in the future. There is a general feeling of confidence in the prosperity of the city and surrounding country that promises to continue, and the most that is anticipated from financial disturbances at other points is a temporary decrease in the volume of business. While it is no satisfaction to hear of dull trade in other cities, it is gratifying to local pride to know that Omaha is at the head of the list of prosperous Western cities.

New Orleans.

A. BALDWIN & Co.—Business during the month of June has shown a slight improvement over the June of the previous year. However, just at present business is very dull, although the scare attending the state of the river has about subsided. The building lines in the city show some activity, and the business from Texas also shows an improvement, but the States bordering on the Mississippi River are at a standstill. The Mexican trade has dropped out most completely, and there is little doing in that section. Owing to the quarantine restrictions trade with Central America shows a diminution at this season of the year, although this is to be expected under the circumstances.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—At this date we are at the opening of the usual midsummer quiet, and nothing is looked for in trade circles outside of mail orders for immediate shipment, together with small orders that may come from the hands of a few salesmen who may deem it advisable to make short trips prior to the summer vacations. We write this concerning the local trade. Salesmen who have charge of this trade usually go on their vacations of two weeks as soon after July 1 as practicable; therefore a summer quiet prevails, and a large proportion of the working force start on their usual two weeks' vacation about July 1. The date, however, is not far distant when the more remote trade will, as a rule, place their orders for early fall shipments. In what condition of mind these traders will be found remains to be seen.

We think it fortunate that we have

reached the period of the midsummer quiet, which will give a chance for recuperation, time for reflection for looking over the past eventful few months, and congratulate ourselves that the financial conditions and distress have reaped no larger death harvest in mercantile circles. In this connection it might be well to state that great credit is due to the financial institutions, especially in New York and Philadelphia, for their prompt efforts to sustain each other, and thus relieve the country at large from the serious disaster which threatened them.

To them great credit is also due for their utmost efforts to prevent financial distress to their many customers, and to the present national banking system; and in view of the estimable management of a great number of these strong institutions, we as a country have thus far been saved from a general financial panic, having on the contrary been able to pursue trade regardless of the breakers that have followed each other in rapid succession, and at times threatened to engulf the entire credit system.

We, as a nation, are progressive far beyond any nation on the globe. Nothing stagnant is healthful, nor can it remain without causing sickness and impeding our progress. Old fog manufacturers cannot compete with aggressive competitors. Mercantile houses doing business on the plan of 50 years ago would die from "dry rot." Each must have equally advanced ideas of the age or must suffer from their own inability.

Neither can a country be passive successfully while waiting for "something to turn up" when immediate action is required.

In recent years it unfortunately has become the custom of one political party to oppose everything their political opponents advocate.

Common intelligence assures us that neither party can be infallible in their idea of government, and when we read, one year ago, daily communications condemning the policy of our Government working in harmony with financial institutions of our country, we were led to believe some hidden and unearthed scheme would be devised which would at least prevent serious results in a reverse financial policy; but when not only our own country, but all foreign countries, saw we had no definite policy other than let events take care of themselves, confidence was lost. All will admit we were a prosperous nation six months ago; to-day, 50,000 to 100,000 are out of employment in the various factories, and recently four times the latter number have agreed to resume work after July 1 at a reduction of 6 per cent. to 10 per cent. on their former basis, and President Cleveland's proclamation reads as follows:

"The distrust and apprehension concerning the financial situation which pervade all business circles have already caused great loss and damage to our people, and threaten to cripple our

merchants, stop the wheels of manufacture, bring distress and privation to our farmers, and withhold from our workmen the wages of labor."

With this state of affairs staring us in the face it behooves every one to be cautious in his own business, husband his own resources, suspend all extravagances, avoid long credits, both in larger and smaller amounts, and pay cash as nearly as possible until the overwhelming demand of the people will be heeded and some action taken by our Government which may possibly relieve the present embarrassed situation.

San Francisco.

HUNTINGTON HOPKINS COMPANY.—Trade generally has not been as satisfactory of late as could be desired. The existing low rates of freight have caused a weakening in the market, and this has a tendency to make buyers cautious. Money is scarce and collections not good; there will be an improvement in this respect, however, as soon as the grain crop is harvested and farmers are able to realize.

To a certain extent our State is somewhat depopulated on account of so many people visiting the World's Fair at Chicago, no doubt a fair proportion really not being in a position to afford the trip and necessary expenses. We look for an improvement all round later in the season, when stocks must be replenished, as dealers have for some time been doing business on the hand-to-mouth principle, and by that time the freight war may be so adjusted that stocks will be of better value.

St. Paul.

FARWELL, OZMUN, KIRK & Co.—The past two weeks have been noted for nothing special in the way of trade, except that jobbers have shown more disposition to restrict sales by cutting down orders and not soliciting trade by the traveling salesmen so assiduously as usual. All houses are reducing lines of credit to slow-paying customers. This will continue so long as the financial situation does not improve. If the present prospect of some improvement is realized, and if there is the certainty within next 30 days of about an average harvest in the Northwest, there will then be an increased effort to sell goods. On these two contingencies the trade here will depend and our jobbers will be conservative and not move till they see their way.

There is no disposition whatever to cut prices in order to move goods. None of the houses show any indication of having any kinds of goods in such quantities as to render them anxious to unload at a cut price. On the contrary, the goods they have in stock they consider very desirable property, and they greatly prefer to dispose of them no faster than can be done at fair prices and to desirable customers, rather than force goods on the market and then, after a little, be compelled to take their chances of buying on the future market.

On the whole, the outlook is not un-

favorable. An average crop is expected, and if so, and if Congress settles the silver question satisfactorily, we expect a good fall trade.

Collections are very fair, very little below the average of other years at this season.

Portland, Ore.

CORBETT, FAILING & ROBERTSON.—Trade seems to be settling down to midsummer dullness before that season is here. The financial outlook does not improve as yet. There have not been so many bank failures of late, but the stringency in money matters still exists. Our local banking houses continue to accommodate their customers, but the foreign banks, whose policy is dictated in London, have shown a disposition to curtail credits.

Crop prospects are still flattering. However, should wheat not command a better price and meet with more ready sales this fall than wool has so far this year, it will be a drug in the market.

On the whole, the outlook for the coming six months, as far as business is concerned, is not what might be desired. Prices still continue to decline, leaving a narrower margin of profit than this section has ever had to contend with.

Notes on Prices.

Cut Nails.—Many of the mills have already shut down for repairs, and on account of the condition of the market, the demand being moderate and prices far from satisfactory. They will evidently pursue a conservative course and avoid accumulating stocks, and it is not unlikely that they will shut down for a longer period than usual. The quotation of \$1.05 for carload lots at mill still represents the market, but has recently been shaded slightly on regular averages, and with more freedom where the specification is especially attractive. The volume of business, however, is moderate, and the market is decidedly sluggish. Small lots of Steel or Iron Nails from store in New York are quoted regularly at \$1.30 to \$1.35.

Chicago, by Telegraph.—The condition of trade is about the same as was reported last week. Orders are light and specifications are coming in slowly. Prices remain as before at \$1.20 to \$1.25, Chicago, for factory lots and \$1.30 to \$1.35 from store for small lots.

Wire Nails.—There is little new to report in this line. The mills, with perhaps one or two exceptions, have shut down for the month, in accordance with the understanding reached a few weeks ago. This, it is hoped by the manufacturers, will have the effect of giving the market a somewhat better tone and will certainly prevent the accumulation of stocks. While during the month little attention will be given to sales or manufacturing, it is expected that the conferences, with a view to

reaching some understanding in regard to improving the condition of the market in this line, will be continued, and the opinion is freely expressed by well-informed parties that the course of things during the past year has impressed upon the manufacturers the necessity of doing something to prevent the demoralizing competition which has prevailed. The general quotation for carload lots at mill is \$1.35, but some of the manufacturers refuse to meet this figure. On the other hand, it has been shaded by others in special cases.

Chicago, by Telegraph.—Manufacturers report a fair demand, considering the general dullness of trade. Prices are unsettled, with many wild rumors afloat regarding offers which are claimed to have been made. Notwithstanding these rumors sales are being made at rates which could certainly not be obtained if but part of such reports were true. Prices seem to be confined closely to about \$1.45 to \$1.50, Chicago, for factory lots. The mills are all closed down in the West. The Joliet Mill has shut down in every department. The curtailment of production is expected by manufacturers to advance prices within the next two or three weeks, especially in view of the fact that stocks are reported light in all warehouses. The stocks held by the manufacturers on June 1 were said to have been the lowest reported for five years, and the reports for July 1 are expected to be equally satisfactory. Jobbers quote small lots from stock at \$1.55 to \$1.60.

Barb Wire.—The Barb-Wire market is inactive and prices unchanged on a basis of \$2.45 to \$2.50 for Four-Point Galvanized in carload lots at mill.

Chicago by Telegraph.—Trade from factory is very quiet now, as is usual in July. The factories generally have suspended operations and will stay closed for the next month or so. Carload prices are unchanged at \$2.15 for Painted and \$2.55 for Galvanized. Small lots from stock are selling at \$2.30 and \$2.70, respectively.

Polishes.—The following is the price-list and discount sheet on the Polishes manufactured by the Tanite Company, Stroudsburg, Pa., reference to which is made in another column. Each case contains 12 tins, and the company announce that they will not sell less than a case of these goods. Terms 60 days, 2 per cent. discount for cash in 10 days, f.o.b. Stroudsburg, Pa.

	Per gross.
Paste, put up in 1-pound tins.....	\$36.00
Discount, less than 1 gross, 35 per cent.;	
1 gross, 40 per cent.; 5 gross, 45 per cent.	
Liquid, put up in ½-pint tins.....	36.00
Discount, less than 1 gross, 50 per cent.;	
1 gross, 55 per cent.; 5 gross, 60 per cent.	
Gray, put up in 1-pound tins.....	36.00
Discount, less than 1 gross, 35 per cent.;	
1 gross, 50 per cent.; 5 gross, 55 per cent.	
Brown, put up in 1-pound tins.....	36.00
Discount, less than 1 gross, 50 per cent.;	
1 gross, 55 per cent.; 5 gross, 60 per cent.	
Dove, put up in 1-pound tins.....	36.00
Discount, less than 1 gross, 55 per cent.;	
1 gross, 60 per cent.; 5 gross, 65 per cent.	

dexed, so that the class of goods and the various manufacturers of them could have been turned to in a moment, there would not have been much delay in closing the bargain.

The Sale of Athletic and Sporting Goods.

BY T. W. STAKE.

THESE GOODS cannot usually be satisfactorily added to a general Hardware stock, unless a special department with a competent manager be started. The line has grown so large and varied, being almost as complicated as a general Hardware stock, that it requires an experienced person to talk intelligently on each subject, such as Guns, Bicycles, Fishing Tackle, Lawn Tennis, Foot Ball, Gymnasium Goods, Base Ball Goods and Athletic Clothing, &c. A salesman in this line particularly must gain the confidence of the sportsman; he can then sell him the goods he recommends, and can take orders for goods he does not carry in stock. Fortunately, the different lines are seasonable at different times in the year, so that the stock can be changed to suit the season; each particular line can be reduced, so that at the end of the year a very small stock is carried over.

THE SEASONS

Are as follows: For spring, Bicycles, Fishing Tackle; for summer, Base Ball, Lawn Tennis, and Fishing Tackle; for fall, Guns, Foot Ball; for winter, Gymnasium Goods, and, I might add, Skates. Revolvers sell in a small way all the year round.

The kind of goods usually sold in Hardware houses with Sporting Goods departments, or exclusive Sporting Goods houses, in my experience as a traveler for ten years and manager of a Sporting Goods department for five years, the size of the stock carried being graded by the size of the town and its locality, is as follows:

Guns.—A few Single Barrel Breech Loaders; a fair line of imported Guns, to sell from \$10 to \$25; a fair line of American-made Guns, to sell from \$25 to \$75, and a very small sample line of high-grade imported Guns, from \$100 to \$250.

Fishing Tackle.—Medium and high grade goods that suit the section of the country. Toy and stationery stores usually sell the common goods.

Bicycles.—Get an agency for a high-grade Wheel, and carry a sample line from \$20 to \$100. This with a line of sundries is all that is necessary.

Lawn Tennis.—A fair stock of good quality Rackets, with very few common goods; also a good supply of best Balls, with samples of Nets, Markers, &c.

Base Ball.—A complete line of Balls and Bats, but principally good-quality goods; also Mitts and Gloves,

as well as Masks, &c.; also sample material for Base-Ball Suitings.

Foot Ball.—A small line of American Rubber Foot Balls, with a better line of Leather Rugby-shape Balls, and a few Association Leather Balls; also samples of Foot-Ball Clothing to take orders from, as this amusement is increasing in popularity.

Gymnasium Goods.—A complete line of Indian Clubs, Dumb Bells, together with a small line of Chest Weights. Have a catalogue of some large maker of Gymnasium Apparatus.

Revolvers.—A complete line, although better goods sell the best.

Skates.—A complete line where the climate permits of skating.

The sale of the goods can be increased by the clerks or partners joining or taking an interest in the clubs in town, thus making the acquaintance and gaining the confidence of the members. It is policy to keep the stock in season in full view—at the front of the store if possible—so that everybody coming in to buy Hardware can see this line easily.

The stock should be kept clean and fresh, especially Bicycles, Guns, Revolvers, Tennis Rackets and Fishing Tackle. Clerks in this department should always dress neatly and keep the store clean. It is good policy for salesmen to show Sporting Goods to customers, even though they are buying other lines.

SHOW WINDOWS.

Goods should be delivered promptly and when taking special orders never promise goods before the time you can deliver them. The display in show windows should be given special attention and changed often, always showing seasonable goods only, and making the windows attractive by adding special features from time to time—such as pictures of crack Bicycle riders, base-ball clubs, prominent football or tennis players and in the fall mounted animals or any novelty which would attract people. I believe a good percentage of the most profitable business comes from the show windows.

All of the suggestions I mention can be carried out on a small or large scale according to the size of the town. While it may seem that I have mentioned a great many different articles connected with Sporting Goods, still their coming in at different seasons makes the investment rather small at any one time.

THE CATALOGUE ALONE.

I believe in this age of sharp competition it would be difficult to do much business with the catalogue alone, as no person more than a sportsman likes to handle the goods he wants to buy. Still, in very small towns where there is no competition samples of some goods could be carried and orders taken from catalogues for others, but the business must necessarily be small.

Selling the Retailer's Customers.

FROM A HARDWAREMAN in the vicinity of New York we have the following communication, in which he refers to the manner in which his trade is interfered with by manufacturers and jobbers, his complaint referring especially to the latter:

After reading several letters in some of your late issues, I have decided to say a word through your valued paper regarding the injustice shown retail Hardwaremen by manufacturers and jobbers.

I find it in almost every case a difficult matter to secure an order of any importance, owing to the fact that the consumer is as well posted in price as the dealer. This comes from price-lists being sent from manufacturers and jobbers. I have on different occasions figured on the Hardware for a house, and have made it a point to be exact in the cost of every article and allow a fair profit. In several cases my customers would say I was "not posted," they could buy this Hardware for so much, and, after looking into the matter, one could see by the price that it was the jobber's price. In one instance I remember giving a figure on a lot of Hardware to the amount of about \$75 or \$80. This figure was a very close one. My customer complained when he saw my price—it was "way up." In consequence, he gave his order to a well-known jobbing house. But after a week or two he happened in the store one day and I spoke to him about the Hardware, and he told me, frankly, he was sorry he had not given me the order, as the architect had condemned the butts, knobs and other articles on the bill, and it cost him in the end considerably more than my price was, which was guaranteed to be just what the specifications called for. I learned from him that the agent for this jobbing house had bothered him so long for an order on every job he had that he finally allowed him to figure, and this was the result. I find in almost every case, where the consumer buys from the jobber, the jobber will bulk the price—\$50 or \$60 for the lot. They will not itemize the goods, as is a business way, where a man can see every article that he is getting. I agree with the different writers on this subject. The retailers in near-by towns ought to protect themselves—find out the jobbers or manufacturers who sell to consumers, and list them as "Trade Destroyers." I hope to see a decided action in the near future. **NEAR-BY RETAILER.**

THE YALE & TOWNE MFG. COMPANY, Stamford, Conn., are putting on the market a line of Bronze Keys, with artistic bows. There are 12 patterns of bows, showing attractive designs, each possessing an individuality of its own. The Keys are for use in the higher grades of cabinet work.

World's Fair Exhibits.

STANLEY RULE & LEVEL COMPANY, New Britain, Conn., and 29 Chambers street, New York, issue a circular illustrating their showcase, which is located in the Department of American Hardware, northeast corner of Manufactures Building, Section P-92. The goods are exhibited in an attractive manner, and make a handsome appearance. The samples represent their full assortment of Carpenters' Tools, with all changes and improvements up to the present time. Referring to the exhibit, the manufacturers remark that it will afford to both dealers and mechanics who visit the exposition a favorable opportunity to observe the great variety and high quality of their tools.

THE CLAÜSS SHEAR COMPANY of Fremont, Ohio, make a display in the Manufactures Building, Section P, which is entitled to be ranked among the noteworthy exhibits of the fair. They have been fortunate in securing a large square space. In the center of this they have placed an ornamental structure of carved oak, with walls of showcases, topped by a roof having eaves decorated with open Shears. The showcases are filled with Shears and Scissors hanging from horizontal brass rods. The ceiling consists of a velvet-faced square panel inclosed in a gold frame, with Scissors and toothed Bread Knives attached, making a very appropriate piece of decoration. The interior of this structure is furnished with a handsome carpet and a number of chairs for the convenience of visitors. The Claüss trade-mark, a pair of open shears with "I cut" between the blades, is conspicuous among the decorations. Counter showcases extend along the sides of the inclosure. All are filled with fine specimens of the company's products, and the aid of mirrors has not been called into requisition to duplicate the actual number exhibited. There are 80 different shapes and 10 styles of finish, including gold plate. Some showcases are arranged with a view to instructing retail merchants how to effectively display their stock of Shears. Samples of the work done on shears at various stages of completion are shown. A peculiarity of the process adopted by this company is that all Shears and Scissors are welded, and that they have unusually strong points, cutting to the extreme point as well as at the heel. They are among the first, although but a young company, to manufacture a full line of American Scissors, and are beginning the manufacture of high-grade Razors. Their toothed Carving and Bread Knives have passed from a novelty into a staple article of trade. The company began to produce goods in 1888, and now maintain branch offices in New York and London.

KEARNEY & FOOT COMPANY, 100 and 102 Reade street, this city, whose factory is at Paterson, N. J., in Section P, Manufactures Building, make a fine display of their Files and Rasps in a large showcase with an inclined top, on which are placed a variety of their products. A very interesting feature of the exhibit is a collection of large photographs in frames surrounding the top of the inclosure. These photographs were taken in the company's factory and illustrate the old and new methods of File cutting, grinding and forging. Curious forms of Files and Rasps are shown in the collection of exhibits. Among them are very large Files, one weighing 30 pounds, made to special order for use in a shipyard. Specimens are also shown of Leland Stanford's Colt Rasp, designed for use

in California. The company's specialty is the manufacture of Machine Files, and these, consequently, are the most numerous in the collection, all sizes and shapes being shown. Their Files are exclusively used in the model machine shop in Machinery Hall.

THE CHAPMAN MFG. COMPANY of Meriden, Conn., make a gorgeous exhibit of Saddlery Hardware, Sleigh Bells, Plumes and Dog Collars, in Section P, Manufactures Building. The character of these goods enables a much more brilliant arrangement to be made than is possible with Hardware of the standard types. The display is made in a fine mahogany upright case, on the lower panels of which have been carved large heads of dogs in bold relief and of natural size. The goods are shown in great variety, and in almost an infinite number of styles of decoration and finish.

J. BARDSLEY, 149 and 151 Baxter street, this city, exhibits in the Manufactures Building, Section P, Checking Spring Hinges, Door Checks and Wood Door Knobs. For the purpose of displaying the action of the Hinges and Checks, a number of mahogany doors have been put up, some of which are fitted with single-acting Checks and others with double Springs and Checks. These Springs are placed in the floor, the doors being pivoted at top and bottom, which is done more easily and rapidly by a carpenter than fitting Hinges after the usual manner. The checking action prevents a door from slamming; also holds it open if desired, and further prevents a double-acting door from swinging back and forth. The old-style Door Springs and top Checks are also shown. All these Checks are on the hydraulic principle, operating by the compression of oil in a cylinder which actuates a piston, giving the return motion. A large variety of Wood Door Knobs is displayed in trays.

THE JOSEPH DIXON CRUCIBLE COMPANY, Jersey City, N. J., and 68 Reade street, New York, have two exhibits at the fair. One is of Dixon's American Graphite Pencils, in the northeast gallery of the Manufactures Building, and the other, covering all the other articles manufactured by them, in the northeast gallery of the Mines and Mining Building. The Pencil exhibit occupies a space 10 x 14 feet and consists of a low mahogany table surmounted by a pyramid of velvet, covered with Pencils, arranged in graceful and beautiful designs by an artist employed specially for that purpose, over which stands a rosewood and plate-glass case. The exhibit of general and special Graphite products in the Mines and Mining Building occupies a space 25 x 28 feet. Crucibles, Retorts, Ladles, Stopper Heads and Nozzles, Graphite Boxes, Phosphorus Chargers, Resistance Rods and devices, Incandescent Filament Forms, and other special goods made of Graphite, are shown in upright cabinets. In a case is shown the development of an electrotype plate, in which process the use of Graphite is an essential. In still another case are shown over 50 varieties of Graphite, such as Graphite for lubricating, stove polish, foundry facings for green, dry or loam castings, core wash, ingot mold wash, shot and powder glazing, electrotypers, gilders' use, hatters' use, rubber packings, piano and organ actions, "potleading" yachts, for crucibles, lead pencils, paint pigment, lubricants, &c. There are also shown samples of Graphite from all the principal sources from which that article is obtained. One very fine sample from the Island of Ceylon weighs nearly 300 pounds.

Prize Competitions

\$25.00.

The following competition is yet before our readers and will remain open until the date named:

Prize Competition No. 27.

SUBJECT:

Local Associations of Merchants.

It has been found feasible to form associations in many places for the purpose of securing more friendly relations among competitors and reaching an understanding in regard to matters of common interest. Among the good results referred to as coming from such associations are the following: Overcoming petty jealousies; cultivating a spirit of fraternity; listing of undesirable customers; an understanding in regard to time of presenting bills; putting in operation early-closing movements; agreement as to the prices at which goods are to be sold; mutual accommodation in supplying goods which one merchant may be temporarily short of, &c. The subject is thus evidently a broad one and of a good deal of practical interest. In discussing it the following points are suggested:

Whether it is desirable to have such associations;

How such associations may be organized;

The objects to be accomplished by them.

It will also be of interest to have any information in regard to the practical working of such associations.

This competition will remain open until July 8, 1893.

The following prizes will be awarded:

First prize.....	\$12.50
Second prize....	7.50
Third prize.....	5.00

The prizes will be awarded for answers which, in the judgment of the Committee of Award, are most suitable for publication and of the most general interest.

We reserve the privilege of extending the time on the competition in case the contributions received are not of sufficient number or merit for the committee to award prizes. This competition is open to every one, and it is hoped that there will be a general response from business men. We shall have the privilege of publishing any or all of the contributions received.

Replies are to be received not later than the dates on which the competitions close. They should be addressed as follows:

DAVID WILLIAMS,

96-102 Reade street,
New York.

Prize Competition No. 27.

The committee to whom the contributions in Prize Competition No. 17 were referred have awarded the prizes as follows:

First Prize to M. W. CARLETON, Cleveland, Ohio.

Second Prize to L. W. SPRAGUE, Greenville, Mich.

Third Prize to W. T. WARSOP, Fairport, N. Y.

Window Arrangement.

FROM THE STATE of Washington we have an example of up-to-date window dressing. Cochran Bros., Montesano, Wash., favor us with a photograph of a window picture, which is reproduced in the accompanying illustration. The Columbian year is well represented here by Hardware articles, as everything used in the make-up of the picture, except the background, is directly connected with the Hardware and Metal trades. The hull of the ship is of sheet lead, the sails of building paper, the masts of tin, the rigging of copper wire, and the water of green wire cloth. A Cross-Cut Saw forms the top of the picture, with Coil Chain looped beneath, in the center of which is suspended a small Anvil. The word "Columbian" contains Chain, Dog Collars, Coil Spring, Rules,

Practical Suggestions.

FROM A RECENT CONVERSATION with a prominent New England retail Hardware merchant, the subject of jobbers and manufacturers selling to consumers assumed an aspect which is not often touched upon. It was apparent from the manner in which this merchant had overcome this difficulty in various cases, that he considered the fault lay more with the retailer than with the jobber and manufacturer. One case was mentioned in which trimmings were to be furnished for a large building, and in which he came in competition with three of the largest manufacturers in the country. The manufacturers figured on the goods called for in the specifications, and the owner was about to accept the manufacturer's bid which was the lowest. The mer-

chant found the inventor, and from him trace up the manufacturer. Such labor has not been without its reward, as customers soon found that their wants would be intelligently supplied at home without further trouble to them.

The question seems to resolve itself into this: that if a merchant will thoroughly inform himself about the goods required by his trade, and will not sit passively by and allow manufacturers and jobbers to take the bread out of his mouth, he can be master of the situation.

Rice-Born Hardware Company.

OFFICIAL ANNOUNCEMENT is made under date June 23 that at a meeting of the stockholders of the Rice-Born Hardware Company, Limited, New Orleans, held on that day, the corporation was unanimously dissolved. Its affairs will be liquidated by the following commissioners, who were duly elected by the stockholders: Phil. R. Rice, Edw. A. Born and Wm. W. Sumner. It is also stated that there will be no interruption in the business, which will continue as usual, as per the following announcement by the commissioners on behalf of the company:

OFFICE OF THE RICE-BORN
HARDWARE COMPANY, LIMITED
(In liquidation).

Our president, Henry Rice, who is at the same time the largest stockholder in this corporation, has for some years felt the cares and responsibilities of his position weighing upon him, and owing to his advancing years has been desirous of retiring from active business life.

Finding recently that Mrs. M. R. Born, representing the Jacob Born estate, to a large extent shared his feelings, the present time, just at the close of our fiscal year, seemed a fitting time to liquidate the affairs of the company and let them retire.

In effecting this liquidation the business of the company will go on as usual, the only difference being that their affairs will be managed by the undersigned commissioners, instead of by a board of directors, and inasmuch as all the commissioners were members of the old board there will be virtually no change.

The wants of our customers will receive the same attention as formerly.

Our stock will be kept intact and ready to meet all demands.

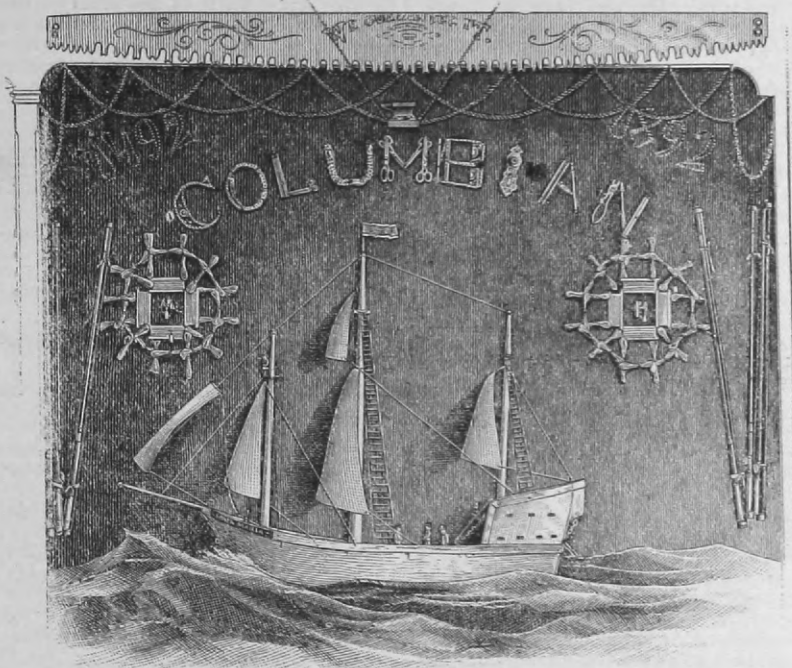
Our travelers will continue to visit our friends, and there will be no difference in the conduct of the business.

Thanking you for past favors and soliciting your future business, we are very respectfully yours,

RICE-BORN HARDWARE CO., LTD.
(In liquidation),

PHIL. R. RICE,
EDW. A. BORN, } Commissioners.
WM. W. SUMNER, }

R. LOVELAND AXE COMPANY, Lamar, Pa., whose works were destroyed by fire on February 26 last, have rebuilt and are now prepared to fill orders with dispatch. In a circular relating to the matter, they state that they use the best materials obtainable and employ first-class workmen. The capacity of the new plant exceeds that of the former plant, many improvements having been introduced. The company mention that they are not members of any trust or combination in their line.



Columbian Window Dressing.

Scissors, Safety Chain, Wire Nails, Drawer Pulls, Escutcheon and Rose, Carpenter Pencils, Hog Ringer, and Bit. The wheels on either side are made up of Fish Lines on blocks and in hanks, with Reels in the center. It is hardly necessary to add that the window attracted a great deal of attention, and that the enterprise and ingenuity shown in getting up so elaborate a design were favorably commented upon.

AMERICAN BIT BRACE & TOOL COMPANY, Buffalo, N. Y., issue a circular, under date 27th ult., in which they announce that owing to the stringency of the money market and other causes they have been compelled to make a general assignment for the benefit of their creditors to Henry L. Schwartz of Buffalo. The assignment, it is stated, provides that all creditors are to share alike in the property and assets of the company, and no creditor receives any priority over the others. They are expecting in a few days to be able to prepare a statement of their assets and liabilities, and think that they will be able to show that all creditors will receive payment of their claims in full.

chant had, however, familiarized himself with bad points in the construction of the goods of the various manufacturers, and where their goods had failed on previous jobs to give satisfaction. When these defects were pointed out to the owner it did not take him long to decide that his order was safer in the hands of a practical man who would study his interest, even at a somewhat higher figure, than if given to a non-resident manufacturer.

The merchant also has a large and increasing trade with mills and manufacturers in the town. This branch of the business has grown largely as the result of an established rule that no customer was to be allowed to leave the store because the goods he wanted were not kept in stock without the matter being first brought to the merchant's notice. In supplying demands for such goods the merchant has taken orders for articles, the maker's name of which he did not know, and has been obliged to search the patent records to

Trade Items.

JOHN G. O'BRIEN, representing the Pullman Sash Balance Company, Rochester, N. Y., sailed on Saturday, 24th ult., for England. Mr. O'Brien will spend two or three months in that country and on the continent, and will devote himself to establishing the company's goods in those markets. The company advise us that several large jobbing houses abroad have recently written them regarding their goods, and they deemed it best to see them personally concerning the matter.

UNDER DATE OF JUNE 30 the copartnership heretofore existing between Robert Roger Haydock and Eugene Bissell, under the firm name of Haydock & Bissell, 12 Murray street and 15 Park place, New York, was dissolved by mutual consent. R. R. Haydock retires to assume the position of sales agent of the Bethlehem Iron Company, in charge of their office at 421 Chestnut street, Philadelphia. Mr. Bissell will continue the auction and commission business at the former stand in connection with E. V. N. Bissell and Frank Van Name, under the firm style of E. Bissell, Son & Co. The new firm assume all the assets and liabilities of the old concern.

MOSSMAN, YARNELLE & Co., Fort Wayne, Ind., have purchased the entire stock of Iron and Heavy Hardware formerly carried by Coombs & Co. of that city, and will commence inventory on July 5. Mossman, Yarnelle & Co. will move their stock to the large stores heretofore occupied by Coombs & Co. and will combine the two stocks, which, they claim, will give them the largest stock of Iron, Steel, Hardware, Wood Stock, Carriage Trimmings, &c., in the State of Indiana.

E. LOTHAR SCHMITZ, 92 Reade street, N. Y., is distributing a pamphlet of 22 pages, 8½ x 7 inches in size, calling attention to the Fox safety razor, stropping machine, &c., manufactured by him. The letterpress descriptions are in English, German, French and Spanish, as the book is intended for foreign as well as domestic trade. The various modes of packing the razor, together with the accompanying stropping devices, are fully illustrated. At the back of the pamphlet is a number of blank order forms to be used by purchasers. These are perforated so they may be readily detached.

F. A. POWERS, Hardware merchant, at Norwalk, Ohio, was visited by fire May 3, 1893, and his stock almost totally destroyed. Mr. Powers formerly traveled in the interests of Pratt & Co. of Buffalo, N. Y., and the W. Bingham Company of Cleveland, Ohio, and will be remembered by many now in trade in Northern Ohio and Western Pennsylvania. For the past 17 years he has been located at Norwalk, where he has built up a large business. We are advised that his insurance has been settled satisfactorily and he expects to continue in business. He will associate with him his brother-in-law, Fred G. Moir, under the firm name of F. A. Powers & Co. The new firm have leased for a term of years a double store, containing basements, first and second floors, which is to be fitted up in modern style. The firm expect to be ready for business with a new stock early in August.

HENRY SHELDON BLOSSOM, secretary of the W. Bingham Company, Cleveland, Ohio, was on June 21 married to Miss Eva Gillam Pinson, daughter of Mrs. Meredith E. Gillam, at Brunswick, Ga.

WALLACE & SONS, 29 Chambers street, N. Y., are issuing an attractive folder

of some of their art goods, embracing Onyx Tables, Cabinets and Pedestals, and Banquet Lamps. It is printed in colors, to represent the actual appearance of the goods, while the various measurements given will enable those ordering from a distance to get some conception of the goods. These goods are finished in gold and silver plate, lacquer, &c.

WE ARE ADVISED by the receivers of the Boston & Lockport Block Company, Boston, Mass., and Lockport, N. Y., that the factories of the company are running and prepared to fill all contracts. Charles Parker, formerly superintendent of the Lockport factory, has been transferred to the Boston factory, and for the present will have charge of the latter. E. D. Whitney, next in charge at Lockport, has been promoted to Mr. Parker's place. It is stated that both factories have a good amount of orders on hand. We understand that the holders of the bonded indebtedness were very agreeably surprised that their July notes were honored, the courts having granted permission to pay them.

SPECIALTY MFG. COMPANY is the name of a concern who have recently commenced the manufacture of wringers, clothes washers, step, common and extension ladders, rat traps, lemon squeezers, &c., at Titusville, Pa. The officers of the new company are as follows: L. T. Gorenflo, president; D. J. Whitney, secretary, and R. L. Rice, treasurer. Mr. Gorenflo was connected with the F. F. Adams Company of Erie, Pa., for 20 years, during the last six of which he held the position of superintendent of their factory. Mr. Whitney has also been connected with the F. F. Adams Company for the past six years. The company's factory was started June 1 and we are advised that they are now in full operation.

LAST WEEK a large delegation of the Merchants and Manufacturers' Association of Baltimore visited the World's Fair city and proceeded to "do" the exposition thoroughly. Members of other business associations in various parts of the country have arranged to visit Chicago in the same way, preferring to go with plenty of company rather than alone.

INGERSOLL MFG. COMPANY of Lansing, Mich., have brought out a lamp-stove which they term the Magic room heater. It consists of a square metallic table with four legs. The lamp is placed in a frame a short distance from the floor and the heat passes through what is termed the "heat battery" at the top, which is composed of a great number of hot air pipes or ducts. Air currents are drawn through the battery, heated and discharged into the room. It is claimed that the stove will heat a room 16 x 16 feet in cold weather, with the consumption of one gallon of oil in 12 to 15 hours. The size of the stove is 10 x 10 inches and 30 inches high. When not in use as a stove it forms an ornamental table or stand.

MONTROSS & COOLIDGE, Chicago, report their Hotel Audubon, at Midway Plaisance and Oglesby avenue, well patronized by the Hardware and Metal trades in attendance at the World's Fair. They have received numbers of commendatory letters from departed guests, expressing their great gratification that they had been enabled to meet trade associates under pleasant auspices, which had added much to their enjoyment of the exposition. We are informed that the charges for rooms continue very reasonable, notwithstanding the very convenient location of the hotel to the fair—\$1.50 each per day for two or more persons and \$2 per day for one person.

Manufacturing.

THE NATIONAL TIME RECORD COMPANY of Milwaukee, Wis., are having a good demand for the Bolte Time Recording Clock which they manufacture. They have made shipments to Portland, Maine, and to San Francisco. Local manufacturers have been quick to see the good points of this Clock, and have introduced it in their factories. It can be used for an almost unlimited number of workmen, who record their own time, so that there is no opportunity for dispute over it.

THE KIECKHEFER ELEVATOR MFG. COMPANY have recently taken possession of their new building at the corner of South Twelfth and St. Paul streets, Milwaukee, Wis. This is a three-story brick building, 150 by 60 feet, with a wing 80 by 50 feet. The company have a capacity of 400 elevators per annum. They have issued a fine illustrated catalogue giving full descriptions of the various kinds of elevators which they manufacture, including the machinery for operating them. They furnish anything in the passenger and freight line, including both large and small elevators for stores and warehouses, sidewalk lifts, &c.

E. N. PORTER & Co., Burlington, Vt., report a good season in Extension Screens, their sales having exceeded those of 1892. Owing to the difficulty of getting Screen Cloth they were unable to fill late orders.

BRYDEN HORSESHOE COMPANY, Catawauqua, Pa., owing to the large increase in the demand for their Boss Shoes, have recently been enlarging their works and are now in full operation. Their capacity has been doubled by the additional facilities.

WISCONSIN REFRIGERATOR COMPANY, Eau Claire, Wis., advise us that they have been unable to keep up with orders, and are contemplating large improvements in their plant for next season.

DECKER MFG. COMPANY, Keokuk, Iowa, advise us that their Arc or No. 15 Curry Comb, while comparatively a new Comb, has met with a very gratifying reception at the hands of the trade, their capacity being unequal to the orders received. They also refer to their Square or No. 16 and the Globe as being fairly good sellers. They regard the outlook for trade during the coming season as very satisfactory.

Price-Lists, Circulars, &c.

NEW JERSEY LAMP & BRONZE WORKS, New Brunswick, N. J., and 91 Duane street, New York: Lamps, Stove Figures, Urns, &c. Two handsomely illustrated catalogues are devoted to these goods, of which there are a large number of designs, many of them in colors. A specialty is made of Clock Figures, of which there are a large number shown. The catalogues are artistic in design and arrangement, and indicate time and labor spent in compiling them.

OIL WELL SUPPLY COMPANY, Pittsburgh and Oil City, Pa., and New York: Artesian Well Supplies. This their second edition contains 374 pages, while their first catalogue had but 160 pages. It illustrates a large line of goods related to the industry, including prices and descriptions. The manufacturers state that they have ten separate, fully equipped manufactories, in which nearly 3000 people are employed, so that they can themselves make anything required to equip, drill and operate Artesian Wells for Oil, Gas, Water or Minerals.

The catalogue is comprehensive, well printed, and substantially bound in cloth.

STUDEBAKER BROS. MFG. COMPANY, South Bend, Ind.: Studebaker Souvenir. The book is handsomely illustrated, showing Vehicles in colors, also views of the interior and exterior of their works. It is bound in cream colored paper, with gold letters. The work will be interesting to those handling this line of goods.

MILLER LOCK COMPANY, Frankford, Philadelphia, Pa.: The Jackson Lock Cylinder. The catalogue illustrates the application of the Cylinder to a variety of Locks, including Rim and Mortise Latches, Front and Vestibule Door Sets, Safe Deposit Locks, Post Office Lock Boxes, Cabinet, Drawer, Cupboard and Chest Locks, &c. The manufacturers claim the Lock to be non-pickable.

KOHLER, HAYSEN & STEHN MFG. COMPANY, Sheboygan, Wis.: Illustrated catalogue of Flint Enameled Stamped Steel Ware, Cast Iron Enameled Stove Ware, Reservoirs, Maslin Kettles, Cuspidors, Sinks, Drip Trays, Enameled Iron Bathtubs, Evaporating Dishes, Caldrons for Chemical uses, and Lawn Vases and Settees. The catalogue comprises 46 pages, containing full price-lists as well as descriptive matter relating to the various goods.

It Is Reported--

That J. W. Estabrook recently purchased the Hardware stock of A. C. Weeks, Marlboro, Mass.

That Stuhr Hardware Company's store at Minden, Iowa, was destroyed by fire on the 22d ult.

That Erickson Bros., Hardware dealers, Watson, Minn., have been succeeded by G. A. Anderson.

That Stearns Bros., dealers in Hardware and Implements, New Richland, Minn., have been succeeded by Stearns & Sorgen.

That David Smith has reopened his Hardware store at Wenham Depot, Mass.

That on the 20th ult., Philip C. Weeks, Hardware merchant, Everett, Mass., was married to Miss Susie A. Cooke.

That Prescott, Mars & Co., dealers in Hardware, &c., Virginia, Minn., were burned out recently. Loss, \$15,000; insurance, \$7,600.

That Robert Barry has bought the Stove and Tinware business formerly conducted by F. D. Draper, Norwood, Mass.

That A. M. Bryant, Hardware dealer, Buckley, Wash., has sold out his business.

That J. A. Bunnell, dealer in Hardware, Implements, &c., Clyman, Wis., has sold out to John T. Collins.

Paints and Colors.

It should be understood that the prices quoted in this column are strictly those current in the wholesale market, and that higher prices are paid for retail lots. The quality of goods frequently necessitates a considerable range of prices.

The holiday spirit, if such a partial suspension of business may be termed, has permeated all branches of the trade, and the week goes on record as the tamest that has been experienced thus far this year, as far as new transactions are concerned. Distinctly new

influences bearing upon the market have failed to appear. The usual rumors about cuts in White-Lead prices have had circulation and trade talk on Vermilion and Paris Green has continued superficially interesting, but nothing new has developed in any instance and other goods have undergone no change whatever. The money situation has had a certain amount of unfavorable influence, checking work in various industries in which Paints are more or less extensively used, and also making collections rather difficult. It is noticeable that, despite the several drawbacks, prices have shown but ordinary variation.

White Lead.—The irregularities in prices that prevailed last week continue. According to some accounts those irregularities are more conspicuous at the present time than they were a month ago. As the story goes, those "outside" corrodors who purchased crude material when prices were lowest have not only increased their output, but competed more energetically for custom, and forced the "combine" to depart from the strict letter of the official card rates, particularly on lots of 500 lb or less. The jobbers have looked to their own ends, as usual, making the most of what the official list affords in the shape of an umbrella, and adapting prices to circumstances. On open quotations several outside corrodors are $\frac{1}{4}\phi$ @ $\frac{3}{8}\phi$ below the combine card rates for large quantities, while some jobbers sell small lots at very narrow margin over net cost. Ciphred down to a fine point, well-posted retailers can purchase 500-lb lots at prices very close to the list rate for lots of 5 tons or more.

Red Lead and Litharge.—Red Lead is very slow of sale at present and there is some irregularity in prices, of domestic particularly, on sales from second hands, while foreign is quite as soft, with offers from importers' hands at as low as $6\frac{3}{8}\phi$ for large lots to arrive. The demand for Litharge has been extremely slow and prices are rather weak for all grades.

Zincs.—In the way of new business in domestic Oxide hardly anything has transpired, since grinders have curtailed work at their establishments, as usual at this season of the year. Deliveries on old contracts fully meet current wants, and it is no secret that more or less stock has accumulated in first hands during the past few weeks. However, it does not appear that there is any pressure to sell or that prices have been shaded, except possibly in an indirect way. Foreign brands are held at former prices, but find very slow sale.

Colors, &c.—Paris Green is firmer under the influence of very good seasonable demand for the article for insect-destroying purposes. Colors that are more prominent in the painters' line remain almost stationary, however, and have met with very commonplace sale the past week. Ready-mixed Paints have been a little slow, but fared as well as could be expected considering general trade conditions.

Miscellaneous.—Block Chalk is unchanged. The arrivals have been quite large, but nearly all stock at hand was taken up in delivery on previous orders and prices remain very steady. Whiting has met with remarkably good demand, and prices for popular brands are well maintained. In the general line of Clays there has been merely routine movement and prices have undergone no radical change.

Oils and Turpentine.

In all branches of the Oil trade business has been slow, and apart from a lower level of value for Lard and inferior greases there is really nothing new to record. The latter movement,

for that matter, has been narrow and really nothing more or less than a culmination of the downward turn in values that gained somewhat rapid headway during the preceding week. In the general surroundings there is nothing visible indicative of any immediate turn in either buyers' or sellers' favor. Speculative interest, to all appearances, is entirely devoid of animation, and regular trade demand is of the most pronounced conservative type.

Linseed Oil.—Recent reports from the West in regard to the scarcity of seed and the high price paid for September and October delivery have had a tendency to strengthen holders who have full stocks of Oil on hand. The demand, however, is not urgent and buyers are taking only such lots as current wants require. City crushers find they are able to work off as much Oil at 50ϕ as they would at a lower figure, and consequently hold to that price. There are some speculative lots which may be obtained at 48ϕ , but the outside supply is gradually being worked off, and those lots are not so important a figure as they were several weeks ago. There has been some negotiation for out-of-town brands at 47ϕ for autumn delivery, but no business has resulted thus far.

Cotton Seed Oils.—No change has taken place in the condition of the market for this line of oils and both buyers and sellers are very conservative at the present time. A few export sales have been made and a fair amount of stock has passed into the hands of home distributors and consumers, nearly all at about the line of prices that prevailed at the close of last week. The latest transactions were at 37ϕ @ 38ϕ for prime crude, 42ϕ @ 43ϕ for prime Summer Yellow and 46ϕ @ 47ϕ for Butter quality. The Union Oil Company, Providence, have revised prices on Salad and winter Cotton Oils as follows: Pure Salad and Olive-flavored, lots of one to ten barrels, 57ϕ per gallon; ten barrels and over, 55ϕ per gallon. Winter White Oil, lots of one to ten barrels, 57ϕ per gallon; ten barrels and over, 55ϕ per gallon. Winter Yellow Oil, lots of one to ten barrels, 56ϕ per gallon; ten barrels and over, 54ϕ per gallon. Terms net cash. The above sold by weight, $7\frac{1}{2}$ lb to the gallon.

Lard Oil.—The market has been a dull one and prices are lower, with the leaning still in buyers' favor. Business has been done at a decline in prices to 72ϕ @ 73ϕ for prime quality city-made Oil, and corresponding rates for Western brands. At present the demand is exceedingly slow and buyers hold aloof as much as possible, although current quotations are lower relatively than the cost of raw material. The low-grade Oil is almost wholly neglected.

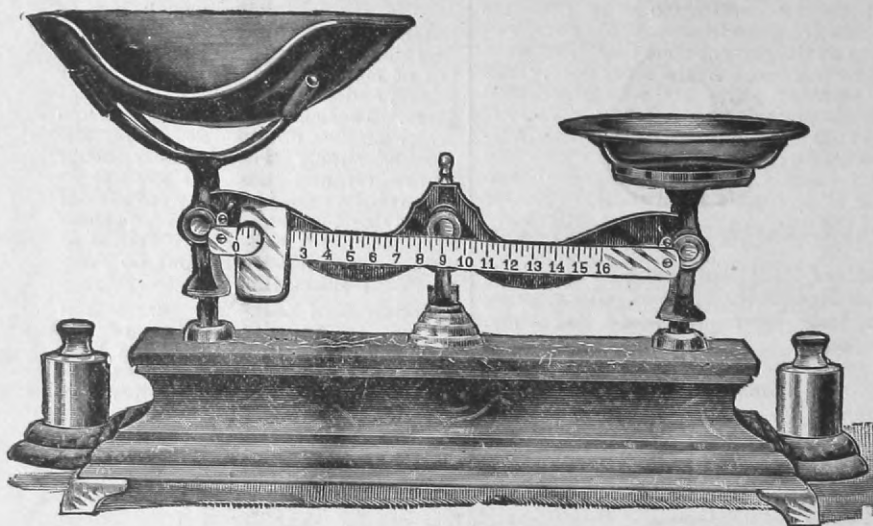
Fish Oils.—Latest reports from the Menhaden fishing note poor catch of fish, but there is apparently sufficient Oil for all present requirements. A sale of new Oil amounting to 350 barrels was transacted at prices on the basis of former quotations. Nothing new has transpired in Sperm or Whale Oils, but the tone of the market for the latter is firm, owing to moderate stocks.

Miscellaneous.—Ceylon Coconut Oil has been sold at $5\frac{3}{8}\phi$ to $5\frac{5}{8}\phi$ on the spot, according to size of lot and terms of payment, and the market is firmer. Cochin is dull and unchanged. Common Olive Oil is without change in price and has met with slow sale. There has been no change in Red Oils or in Neatsfoot Oil.

Spirits Turpentine.—There was a slight advance in prices during the early part of the week, but slow demand together with full supplies led subsequently to a reaction to 24ϕ for regular and $29\frac{3}{4}\phi$ for machine barrels. The market closed very quiet.

Confection Scales.

The accompanying cut represents confection scales, manufactured by John Chatillon & Sons, 85-93 Cliff street, New York. The base is of cast iron, daintily finished in imitation of marble, appropriately striped in colors. With the exception of the base the metal parts are all polished nickel, including the weights. The side beam weighs to 1 pound by $\frac{1}{4}$ ounces, with a sliding weight, and two 1-pound weights are set on either end of the base, making the total capacity of the scale 3 pounds. The scale has a re-



Confection Scales.

movable pan on the right-hand side and a scoop on the left. The scale is 20 inches long, 6 inches wide and 10 inches high, including the pans. The pan is 6 inches in diameter; the scoop 12 inches long, 9 inches wide and $2\frac{1}{2}$ inches deep. The manufacturers state that all the bearings are on knife edges, in place of cheap wire connections, thus securing a greater degree of accuracy and sensitiveness.

Gimlet-Pointed Floor Hook.

Michigan Bolt & Nut Works, Detroit, Mich., are putting on the market the above article, as herewith shown.



Gimlet-Pointed Floor Hook.

The advantage in this form of point is that it obviates the necessity of boring an

auger hole when screwing them in place. The manufacturers remark that they are able to furnish hooks with gimlet points at a trifling advance over those with common points.

Smith & Wesson's Self-Lubricating Cartridges.

Smith & Wesson, Springfield, Mass., are putting on the market the cartridge illustrated herewith, Figs. 1 and 2. As shown in Fig. 2, the bullet is provided with a core in its base, about $\frac{1}{8}$ inch in diameter, into which a lead plug is inserted. The core is filled with lubri-

soft, is that it may fill up the passages after the lubricant has been forced out, and thus prevent the escape of gas. It is remarked that with cartridges lubricated in the usual manner the residuum, which at the time of firing is in a molten state, cools rapidly, adhering to the

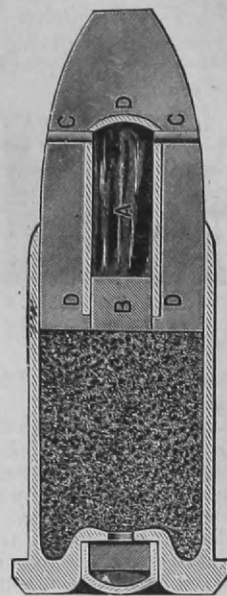
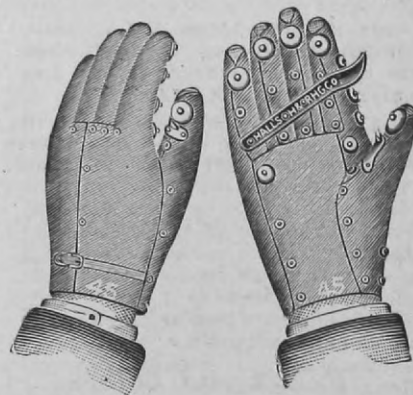


Fig. 2.—Interior of Self-Lubricating Cartridge.

barrel with such pertinacity as to permit of removing only with the vigorous application of a brush, and in some cases with a wire brush and water. This cartridge was invented by Mr. Wesson with the object in view of lessening the fouling in revolvers, as it is explained that the accuracy of revolvers is greatly impaired after a few shots, caused by the excessive fouling. Tests of the cartridge, we are advised, have shown most gratifying results.

Husking Gloves No. 45.

Hall & Ross Husking Glove Company, 253-259 Elston avenue, Chicago, Ill., are introducing the gloves herewith illustrated. The manufacturers state



Husking Gloves No. 45.

that the gloves are made of oil-tanned hog skin, as one of the best wearing leathers for hard work, and that it overcomes the great trouble found in using cheaper leather, as being oil tanned it will not harden by wetting. The company advise us that they have enlarged their manufacturing department and are fully able to take care of all their trade, including the United States and Canada.



Fig. 1.—Smith & Wesson's Self-Lubricating Cartridge.

which, it is claimed, distributes the lubricant evenly along the barrel, keeping the residuum moist and the barrel clean. The object of the lead plug, which is

The Jackson Lock Cylinder.

The accompanying cuts represent the spring-latch form of a lock cylinder put upon the market by the Miller Lock Company, Frankford, Philadelphia, Pa. As shown in Fig. 1, there are six tumblers (No. 3), resting upon a diaphragm (No. 4), and separated by fixed washers (No. 2). The cylinder is operated by a push key of flat steel,

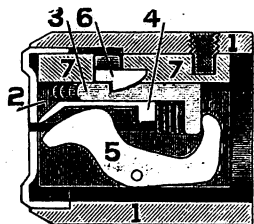


Fig. 1.—Jackson Lock Cylinder.

nickel plated, a full-sized illustration of which is shown in Fig. 3. The six tumblers are used without springs, the lock being called positive. It is explained that the opening in the blade of the key permits the passage through it of a lever which is constructed so that the tumblers cannot be set until the lever has passed quite across the key slot, closing it effectually against successful tampering. Fig. 2 shows the position of the parts when the key is out. In Fig. 1 the pivoted guard, No. 5, is shown in the position into which it has been forced by the tumblers, No. 3, after they have been pushed forward by the key. As the key pushes the tumblers forward they engage the claw or smaller end of the guard, which is thus forced to tilt upon its pivot to the position shown in Fig. 1. The guard,

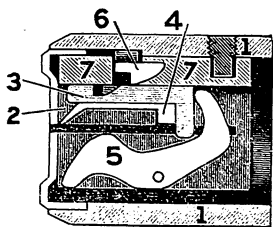


Fig. 2.—Position of Parts when Key is Out.

No. 5, in this cut is shown to have passed entirely across the key slot, through the opening in the blade of the key when the key is in, and it is stated that this must be the position of the guard before the tumblers can be adjusted. The point is made that withdrawing the key forces the guard into the position shown in Fig. 2, the distribution of the tumblers being effected by the claw of the guard; also that the tumblers cannot be set until access to them has been effectually cut off, except by means of a key. When the tumblers have been adjusted by the proper key, the dog, No. 6, rests in their notches, as in Fig. 1. Each of the six tumblers is independent and may be notched in varying positions, yielding many thousands of changes. The manufacturers claim the lock to be non-pickable, the key and the mechanism of the lock being arranged to this end. After the key is introduced into the cylinder the bolt of the lock is thrown by turning the key in the usual manner. The manufacturers consider the end-bitted key the best form of key, and call attention to the fact that the opening in the blade of the key renders it unique, as no other pattern can enter the lock; also, that if the opening in the

key is misplaced, the key falls to enter or to open the lock. With this arrangement, it is pointed out that large sets of master-keyed locks become available in cylinder form by using a single cylinder only, being a feature of value in outfits for hotels, &c. A catalogue shows what has been done to utilize the lock, as it is illustrated in a variety of styles, among which are rim and mortise

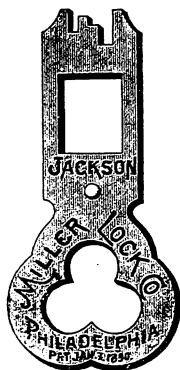


Fig. 3.—Key for Jackson Lock Cylinder.

latches, front and vestibule door sets, safe deposit locks, post-office lock boxes, cabinet, drawer, cupboard and chest locks.

Kitchen Novelties.

Matthai. Ingram & Co., Baltimore, Md., and 42 Cliff street, New York, are putting the above articles on the market

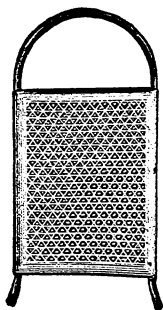


Fig. 1.—The Gem Grater.

as herewith shown. The Gem grater, Fig. 1, is described as being made entirely by machinery, having a retinned



Fig. 2.—Seamless Cup.

wrought-iron frame, and it is claimed to be strong, easily cleaned and durable. The seamless cup, Fig. 2, has a novel

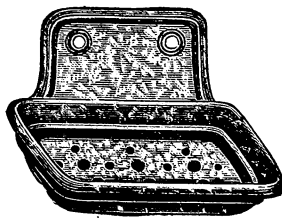


Fig. 3.—Galvanized Soap Dish.

feature in the heavy spring handle riveted at the top and open at the bottom. The handle serves as a hook for attaching the cup to a belt, pail or other article. The galvanized soap dish, Fig 3, is provided with a drainer. The company advise us that they are turning

out this article by means of improved machinery, and they claim that it meets the demand for a low priced durable soap dish.

Tongs for Handling Ice, Small Fruits, &c.

The Unique Mfg Company, 35 Murray street, New York, are marketing a novelty, as illustrated in Figs. 1 and 2.



Fig. 1.—Sugar or Fruit Tongs.—Half-Size Cut.

Fig. 1 represents the article, which is offered as an improved medium for daintily serving loaf sugar, bon-bons,

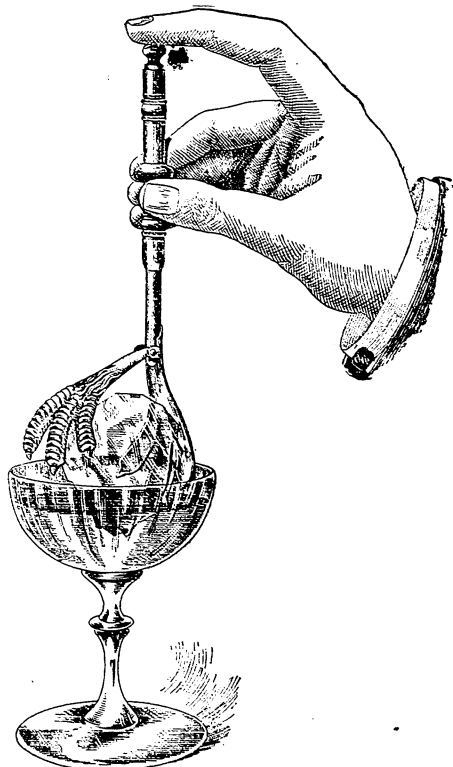


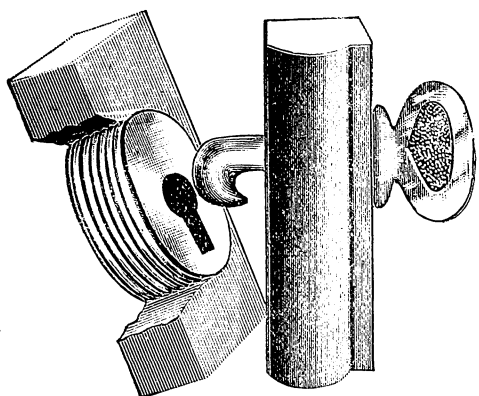
Fig. 2.—Tongs in Operation.

cracked ice, mixed pickles, olives, &c., especially if necessary to extract them from a bottle, or small fruits of any kind. Fig. 2 shows how the tongs are

operated. The projecting ring on the handle serves as a purchase, permitting the knob at the top to be pressed, forcing the hinged claw open while the other remains rigid. By means of a spring in the tube, when the pressure is released the object is caught and removed. The goods are $6\frac{1}{4}$ inches long, plated, and packed in individual boxes.

Common Sense Bead Fastener.

McMillan Sash Balance Company, 56 60 Sixteenth street, Pittsburgh, Pa., are introducing the above article, as herewith shown. It consists of a hook and escutcheon, the hook being put in the bead and the escutcheon in the frame. It is explained that the hook is



Common Sense Bead Fastener.

driven through a $\frac{3}{16}$ -inch hole bored in the bead for this purpose, being then ready for action, and that the escutcheon requires a $\frac{1}{4}$ -inch hole in the frame, in which it is fastened by screwing it into the hole, seven or eight turns only being necessary to secure it in place. The advantages claimed for this device are that the bead can be removed without trouble by turning the hooks, thus saving time and preventing the bead from being split or broken.

The Fox Steel Pulley.

The Fox Machine Company, 126 N. Front street, Grand Rapids, Mich., are offering their new sash pulleys, two of which are shown in the accompanying cuts. Fig. 1 shows the new

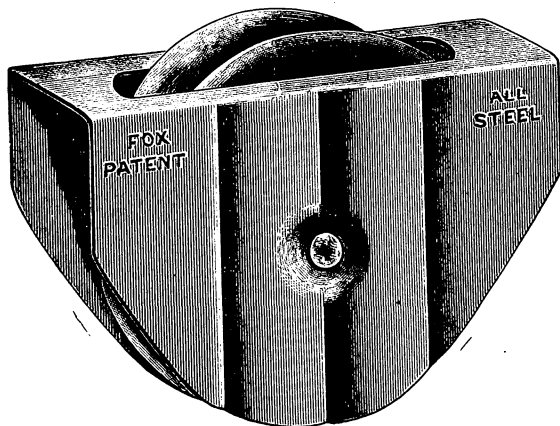


Fig. 1.—The Fox Steel Pulley.

corrugated steel shell, which, it is stated, requires no special tools to let in. Four holes are bored, $\frac{1}{4}$ inch apart, with a $\frac{1}{16}$ -inch bit, after which the shell is

driven down flush with the jamb. It is explained that the ends of the shell cut into the wood and form four spurs to hold it firmly in place, no nails or screws being required. In Fig. 2 a steel rivet is shown, $\frac{1}{4}$ inch in diameter, with a milled shoulder on each end, riveted tight to the shell, as used in their plain pulley, to prevent

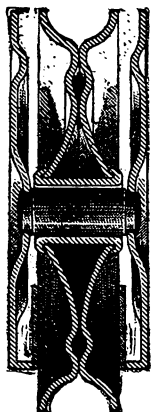


Fig. 2.—Section through Center of Pulley.

the rivet from turning and the shell from being pressed together. This cut also shows a section of the steel wheel, which consists of two steel disks pressed into proper shape and held together by a steel tube rolled over at each end, which is designed to hold the two halves of the wheel firmly together and to form a smooth, true bearing. The manufacturers claim that this pulley is lighter, stronger and cheaper than cast-iron pulleys. They are made plain, also finished in nickel and bronze plate.

New Polishes.

The Tanite Company, Stroudsburg, Pa., and 161 Washington street, New York, have prepared a liquid polish which they state contains no injurious materials; and a polishing paste which they claim is also free from injurious ingredients, and is intended for the same uses as are met by the liquid polish. They also offer a knife polish in three different colors and qualities. This polish is in the form of dry powder, and is intended for use in rotary knife cleaning machines, on knife boards, &c. The manufacturers state that the powder is carefully graded, is

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Current Hardware Prices.

JULY 5, 1893.

Note.—The quotations given below represent the Current Hardware Prices which prevail in the market at large. They are not given as manufacturers' prices, and manufacturers should not be held responsible for them. In cases where goods are quoted at lower figures than the manufacturers name, it is not stated that the manufacturers are selling at the prices quoted, but simply that the goods are being sold, perhaps by the manufacturers, perhaps by the jobbers at the figures named.

The character @ is used to indicate a range of price; thus discount 50&10 to 50&10&5 % signifies that the goods in question are sold at prices ranging from discount 50 and 10 % to discount 50 and 10 and 5 %.

Adjusters, Blind—

Domestic..... doz \$3.00, 38½¢
Excelstor..... doz \$10.00, 50&10&25
North's..... list net @ 10%
Zimmerman's—See Fasteners Blind.

Ammunition—See Caps, Cartridges, Shells, &c.

Anvils—

Single Anvils, 10 lb..... 15&15&5
Peter Wright's..... 11&11½
Armstrong's Mouse Hole..... 10%&11½
Am. Wrought Horse shoe brand..... 11&11½
Trenton..... 10%&10½
Wilkinson's..... 10%&11½
Moore & Barnes Mfg. Co..... 38½¢

Anvil Vise and Drill—

Millers Falls Co., \$18.00..... 20%
Cheney Anvil and Vise..... 20%
Allen Anvil and Vise \$3.00..... 40&10%
Star..... 45&5%

Apple Parers—See Parers Apple, &c.

Augers and Bits—

Common Augers and Bits..... 70&70&10%
Boring Machine Augers..... 70&70&10%
Car Bits, 12-in. twist..... 50%
Russell Jennings' Augers and Bits..... 25&10%
Jennings' Pattern Car Bits..... 40%
Jennings' Pattern Auger Bits..... 60%
Snell's Bits..... 60&60%
C. E. Jennings & Co., No. 10, extension
H..... 40%
C. E. Jennings & Co., No. 30..... 60%
C. E. Jennings & Co., Auger Bits, ½ set,
32½ quarters, No. 5, 55; No. 30, \$3.50, 25%
Lewis' Patent Single twist..... 45%
Fugh's Black..... 20%
Fugh's Jennings Pattern..... 20%
L'Hommedieu Car Bits..... 15&10%
Forester Patent Auger Bits..... 15%
Cincinnati Bell-Hangers' Bits..... 30&10

Bit Stock Drills—

Morse Twist Drills..... 50&10&5%
Standard..... 50&10&5%
Cleveland..... 50&10&5%
Syracuse, for metal..... 50&10%
Syracuse, for wood (wood list)..... 30&30&5%
Cincinnati, for wood..... 30&10%
Cincinnati, for metal..... 45&10%

Expansive Bits—

Clark's small, \$18, large, \$26, 35&35&10%
Ives' No. 4, ½ doz. \$60..... 40%
Swan's..... 40%
Steer's No. 1, ½ doz; No. 2, \$18..... 35&40%
Stearns' No. 2, \$48..... 20%

Gimlet Bits—

Common..... 25&25&5%
Diamond..... doz \$1.25, 40&10%
See..... 25&25&5%
Double Cut, Shephardson's..... 45&45&10%
Double Cut, C. Valley Mfg. Co..... 30&10%
Double Cut, Hartwell's, ½ gro., \$5.00, 25%
Double Cut, Douglass's..... 40&10%
Double Cut, Ives..... 60&60&10%

Hollow Augers—

Ives' French, Swift & Co. (Beecher) } 33½¢&33½¢
Douglass' } 10%
Bonney's Adjustable, ½ doz \$48..... 50%
Stearns'..... 20&10%
Ives' Expansive, each \$4.50..... 50&5%
Universal Expansive, each \$4.50..... 20%
Wood's..... 25&25&10%
Cincinnati Adjustable..... 25&10%
Cincinnati Adjustable..... 25&10%

Ship Augers and Bits—

L'Hommedieu's..... 15&10 to 15&10&5%
Watrous'..... 25&25&10%
Snell's..... 25&25&10%
Snell's Ship Auger Patent Car Bits..... 15&10 to 15&10&5%

Awl Hafts—See Hafts, Awl.

Awls—

Awls, Sewing, Common..... gr. 85¢&90¢
Awls, Should. Peg..... gr. \$1.50&\$1.55
Awls, Pat. Peg..... gr. \$1.50&\$1.55
Awls, Shouldered Brad..... gr. \$1.30 to 1.40
Awls, Handled Brad..... gr. \$2.50&\$3.00
Awls, Handled Scratch..... gr. \$4.00 to 4.50
Awls, Socket Scratch..... doz. \$1.10 to \$1.20

Awl and Tool Sets—See Sets, Awl and Tool.

Axes—

First quality, best brands, \$7.00..... Beveled. \$7.50
First qual., other brands..... 6.50 7.00
Second quality..... 5.50 6.00

Axle Grease—See Grease, Axle.

Axles—

No. 1..... 34¢&44¢, No. 2, 5¢&6%
No. 7 to 14..... 60&10%
No. 15 to 18..... 47%
No. 19 to 22..... 47%
Concord Axles, loose collar..... 44¢&46¢
Concord Axles, solid collar..... 54¢&56¢
National Tubular Self Oiling..... 33½¢&33½¢

Bag Holders—See Holders, Bag.

Balances—

Spring Balances..... No. 2000 25 80
Chatillon, ½ doz..... \$0.50 0.95 1.75 net
Chatillon Straight Balances..... 40%
Chatillon Circular Balances..... 50&10%

Barb Wire—See Wire, Barb.

Bars—

Crow—

Cast Steel..... doz \$ 3½¢
Iron, Steel Points..... doz \$ 3½¢

Basins, Wash—

Standard Fiberware, No. 1, 10½-in., \$1.80;
12-inch, \$2.00; 13¼-inch, \$2.50; 15-inch,
\$3.00.

Beams, Scale—

Scale Beams, List Jan. 12, '82, 50&10%
Chatillon's No. 1..... 40%
Chatillon's No. 2..... 40%
Custer's..... 33½¢

Beaters—

Egg—

Dover..... doz \$1.00 to \$1.20
Duplex (Standard Co.)..... doz \$1.00
Dover (Standard Co.)..... doz \$1.00
Duplex Extra Heavy (Standard Co.)..... doz \$3.50
Bryant's..... doz \$3.50
Double (H. & R. Mfg. Co.)..... doz \$14.00
\$12.00; No. 1, \$15.00; No. 2, \$36.00
Easy (H. & R. Mfg. Co.)..... doz \$12.00
Triple (H. & R. Mfg. Co.)..... doz \$16.50
Spiral..... doz \$4.25 to \$4.50
Improved Acme (H. & R. Mfg. Co.)..... doz \$5.50
Silver & Co..... doz \$5.50

Culinary—

Keystone, P. D. & Co., Each, No. 1, \$1;
No. 2, \$2..... 20%

Bells—

Cow—

Common Wrought..... 60&10%
Western, Sargent's list..... 70&10%
Kentucky, "Star"..... 20&10%
Kentucky, Sargent's list..... 70&10%
Kentucky Durham..... 70&10%
Dodge, Genuine Kentucky..... 70&70&10%
Texas Star..... 50&10 to 50&10&5%

Door—

Gong, Abbe's..... 33½¢&40%
Gong, Yankee..... 45&10%
Gong, Barton's..... 40&10 to 50%
Crane, Brooks'..... 50&10&25%
Crane, Cone's..... 20&10%
Crane, Cone's..... 20&10%
Lever, Sargent's..... 60&10%
Lever, Taylor's Bronzed or Plated..... net
Lever, Taylor's Japanned..... 25&10%
Lever, R. & E. Mfg. Co.'s..... 50&10&25%
Pull, Brooks'..... 50&10&25%

Electric—

Wollensak's..... 20%
Bigelow & Dowse..... 20%

Hand—

Light Brass..... 70&10 to 70&10&5%
Extra Heavy..... 70%
White..... 70%
Silver Chime..... 33½¢&40%
Globe Cone's Patent..... 25&10 to 35%

Miscellaneous—

Call..... 45&50%
Farm Bells..... doz \$3&3½¢
Steel Alloy Church and School Bells..... 40%

Bellows—

Blacksmiths'..... 60&10 to 60&10&10%
Molders'..... 40&10 to 50%
Hand Bellows..... 40&10 to 50%

Belting, Rubber—

Common Standard..... 75&75&10%
Standard..... 70&5 to 70&10%
Extra..... 60&10 to 60&10&10%
N.Y.B. & P. Co., Carbon..... 60&60&5%
N.Y.B. & P. Co., Diamond..... 60&50&5%
N.Y.B. & P. Co., Para..... 40&40&5%

Bench Stops—See Stops, Bench

Benders and Upsetters, Tire—

Stoddard's Lightning Tire Upsetters..... 15%
Detroit Perfected Tire Bender..... 15%
Green River Tire Benders and Upsetters..... 20%

Bits—

Auger, Gimlet, Bit Stock Drills, &c.,
see Augers and Bits.

Bit Holders—See Holders.

Blind Adjusters—See Adjusters, Blind.

Blind Fasteners—See Fasteners, Blind.

Blind Staples—See Staples, Blind.

Blocks—

Cleveland Block Co., Mal. Iron, 50&50&10%
Moore's Novelty, Mal. Iron..... 50%
Sura Grip Steel Cattle Blocks..... 25%
See also Machines, Hoisting.

Bolts—

Carriage, Machine, &c.—

Com. list June 10, '84..... 75&10&5 to 80%
Genuine Eagle, Norway, list Oct. '84..... 80&5 to 80&10%
Eagle, Norway, list Oct. '84..... 80&10 to 80&15%
Phila. pattern, list Oct. 7, '84..... 80%
R.B. & W., old list..... 70%
Machine, list Jan. 1, 1890..... 80&10%
Bolt Ends, list Jan. 1, 1890..... 80&10%

Door and Shutter—

Cast Iron Barrel, Square, &c..... 70&10%
Cast Iron Shutter Bolts..... 70&10%
Cast Iron Chain (Sargent's list)..... 65&10%
Ives' Patent Door Bolts..... 60&10 to 60&10&5%
Wrought Barrel..... 70&10 to 75%
Wrought Square..... 70&10 to 75%
Wrt Shutter, all Iron, Stanley's..... 60&10 to 60&10&10%
Wrt Shutter, Brass Knob..... 50&50&5%
Wrt Shutter, Sargent's list..... 60&10%
Wrt Sunk Flush, Sargent's list..... 60&10%
Wrt Sunk Flush, Stanley's list..... 50&10&5%
Wrt B. K. Flush, Common..... 65&10%

Stove and Plow—

Stove..... 60&10 to 60&10&5%
Plow..... 60&10 to 60&10&10%
R. B. & W., Plow..... 55%

Tire—

Common, list Feb. 28, '83..... 65&65&5%
Port Chester Bolt and Nut Company..... 65%
Empire list Feb. 28, '83..... 65%
Keystone, Philadel., list Oct. '84..... 80%
Norway, Phila., list Oct. '84..... 75%
American Screw Company..... 75%
Norway, Phila., list Oct. 16, '84..... 75%
Eagle, Phila., list Oct. 16, '84..... 80%
Ballard, list Oct. 16, '84..... 80%
Bay State, list Feb. 28, '83..... 65%
R. B. & W., Philadel., list Oct. 16, '84..... 80%

Borers, Tap—

Common and Ring..... 20&10%
Ives' Tap Borers..... 33½¢&35%
Empire Mfg. Co..... 33½¢&35%
Clark's..... 33½¢&35%

Borax—

Per lb..... 9¢&10¢

Boring Machines—See Machines, Boring.

Bow Pins—See Pins, Bow.

Boxes, Wagon—

Per doz..... 24¢

Boxes, Miter.

Spiker's Excelsior, 3 in. \$7.50, 4 in
\$8.50, 5 in. \$13.00, 6 in. \$15.00..... 20%

Braces—

American Bit Brace and Tool Co.....
Nos. 10, 12, 20..... 60&10%
Nos. 11, 21, 24, 27..... 70&10%
Nos. 22, 23, 25..... 60&10&5%
Nos. 13, 26, 37..... 70&10&5%
Andison's.....
Barker's Imp'd Plain..... 75&10&80%
Barker's Imp. Nickeled..... 65&10 to 70%
Ratchet..... 75&10&80%
Eclipse Ratchet..... 60%
Globe Jawed..... 40&40&10%
Corner Brace..... 40&40&10%
Universal, 16 in., \$2.10; 10 in. \$2.25
Buffalo Ball..... \$1.10 to \$1.15
Barber's..... 50&10%
Saxton's.....
Barker's Imp. Polished..... 75&10&80%
Barker's Imp. Nickeled..... 65&10 to 70%
Ratchet, Polished..... 50&10 to 60%
Ratchet, Nickeled..... 40&10 to 50%
Buffalo Ball..... net, \$1.10 to \$1.15
Bartholomew's.....
Nos. 25, 27 and 30..... 50&10 to 60&5%
Nos. 117, 118, 119..... 70&70&5%
Common Ball, American..... \$1.00 to \$1.10
Fray's Genuine Spofford's..... 50&5 to 50&10%
Fray's Nos. 70 to 120, 81 to 123..... 20% to 44%

Ives' New Haven Novelty..... 70&70&5%

New Haven Ratchet..... 60&5 to 60&10%
Barber Ratchet..... 60&5 to 60&10%
Barber's..... 60&5%
Spofford..... 60&5 to 60&10%
P. S. & W. Co., Peck's Patent..... 60%
Rose & Johnson..... 50%
Davis Patent..... 50&10%

Brackets—

Shelf, plain..... 65 to 70%
Regular, list..... 60&10 to 70&10%
Shelf, fancy..... 70&70&10%
Sargent's list..... 70&70&10%
Other makes at a wide range of prices.
Bradley Shelf Brackets..... 70&10%

Bright Wire Goods—See Wire.

Broilers—

Hens' Self-Inch..... 9 10 9x11
Basting..... Per doz. \$4.50 5.50 6.50
New Haven..... 50%
Wire Goods Co..... 65&10%
Morgan Odorless..... doz. \$12.50
Queen City..... 33½¢

Buckets, Well—

Galvanized—
Hill's..... doz. 12 qt. \$4.25; 14 qt. \$5.25
Iron Clad..... doz. 14 qt. \$4.25 to \$4.50
Helwig's Flat Iron Band..... \$3.75
Helwig's Wired Top..... doz \$4.00

Bull Rings—See Rings, Bull.

Butcher's Cleavers—See Cleavers, Butcher's.

Brass—

Wrought Brass..... 80&80&10%
Cast Brass, Tiebout's..... 50%
Cast Brass, Fast..... 33½¢&40%
Cast Brass, Loose Joint..... 33½¢&40%

Cast Iron—

Fast Joint, Narrow..... 50&10&5 to 60%
Fast Joint, Broad..... 50&10 to 60%
Loose Joint..... 50&10 to 60%
Loose Joint, Japanned.....
Loose Joint, Jap. with Acorns.....
Parliament Butts..... 75¢&7½
Mayer's Hinges..... 10%
Loose Pin, Acorns.....
Loose Pin, Acorns, Japanned.....
Loose Pin, Acorns, Japanned,
Plated Tips.....
Fast Joint, Narrow.....
Fast Joint, Broad.....
Fast Joint, Broad.....
Loose Joint, Broad.....
Table Butts, Back Flaps, &c.....
Inside Blind, Regular.....
Inside Blind, Light.....
Loose Pin.....
Bronzed Wrought Butts..... 50&50&10%

Wrought Steel—

Fast Joint, Narrow.....
Fast Joint, Broad.....
Fast Joint, Broad.....
Loose Joint, Broad.....
Table Butts, Back Flaps, &c.....
Inside Blind, Regular.....
Inside Blind, Light.....
Loose Pin.....
Bronzed Wrought Butts..... 50&50&10%

Callipers—See Compasses.

Calks, Toe—

Gautier, One Prong, Blunt..... 54¢&56¢
Burke's One Prong, Blunt..... 54¢&56¢
Burke's, Two Prong, Blunt..... 74¢&76¢
Burke's, One Prong, Sharp..... 64¢&70¢

Can Openers—See Openers, Can.

Cans, Milk—

S. S. & Co.: 5-gal., \$3.00; 8-gal., \$4.40;
10-gal., \$4.75 each..... 40&10%

Caps—

Percussion—
Hicks & Goldmark's and Union Metallic
Cartridge Co. } 100%
F. L. Waterproof, 1-10's..... 35¢&37¢
E. E. Trimmed Edge, 1-10's..... 47¢&50¢
E. E. Grnd. Edge, Cent. Fire, 1-10's.....
Musket, Waterproof, 1-10's..... 50¢&54¢
G. D..... 27¢&30¢
S. B. Genuine Imported..... 45¢
Eley's E. B..... 56¢&58¢
Eley's D Waterproof, Central Fire..... \$1.60

Primers—

Berdan Primers, \$1.00..... 25¢
B. L. Caps (Sturtevant Shells) \$1.00..... 25¢
All other Primers, \$1.20..... 25¢

Cards—

Watson's Cotton, Wool, Horse and
File, list January 28, 1891..... 25¢

Carpet Stretchers—

See Stretchers, Carpet.

Cartridges—

Rim Fire Cartridges..... 50&50&5%
Rim Fire Military..... 15&25%
Cent. Fire, Pistol and Rifle..... 25&25&10%
Cent. Fire, Military and Sporting..... 15&25&10%
Blank Cartridges, except 22 and 32 cal.,
additional 10% to above discounts.....
Blank Cartridges, 22 cal., \$1.75..... 25%
Blank Cartridges, 32 cal., \$3.50..... 25%
Primed Shells and Bullets..... 15&25&10%
B. B. Caps, Round Ball, \$1.75..... 25%
B. B. Caps, Con. Ball, Srgd., \$2.00..... 25%

Carpet Sweepers—

See Sweepers, Carpet.

Casters—

Bed..... Brass..... 55¢&55&10%
Plate..... 60&60&10%
Shallow Socket..... 40&10%
Deep Socket..... 40&10%
Martin's Patent (Phoenix)..... 45&10 to 50&10%
Tucker's Patent, low list..... 45%
Payson's Anti-friction..... 70&70&10%
Payson's Truck..... 60&60&10%
Yale Casters, low list..... 45%
Yale, Gem..... 70%
Giant Truck Casters..... 35%
Stationary Truck Casters..... 60&10%
Socket Truck Casters..... 60&60&10%
Gwinner's Common Senses..... 45%
Gwinner's Hercules..... 45%

Cattle Leaders—

See Leaders, Cattle.

Cement—

Victor Elastic..... 5 m pails \$ 25

Chain—

Trace, Wagon and Fancy Chains,
List revised May, 1893..... 60&60&10%
American Coil, in cask lots,
3-16 3/4 5-16 3/4 7-16 3/4 9-16 3/4
\$7.00 5.30 4.45 3.80 3.85 3.50 3.40 3.35
Less than cask lots, add 10¢ per lb.
German Coil, list July 12, 1892..... 60&10%
German Halter Chain, list July 12, 1892..... 60&60&10%
Covert Halter..... 80&80%
Cover Traces..... 35&35%
Cover Heel Chain.....

Chalk Lines—See Lines.**Checks, Door—**

Only 50%

Chisels—**Socket Framing and Firmer**

P. S. & W. 75¢ to 10¢

New Haven 75¢ to 10¢

Wetherby 75¢ to 10¢

Mix 75¢ to 10¢

Ohio Tool Co. 75¢ to 10¢

Douglas 75¢ to 10¢

Buck Bros 75¢ to 10¢

Merrill 75¢ to 10¢

L. & J. White 75¢ to 10¢

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traded, Crown White, # D. 50¢ 50%

traded, Crown Drab and Fancy, # D. 50¢ 50%

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Wire Picture—

Braided or Twisted 80¢ to 10¢

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Drill Bits or Bit Stock

Drills—See Augers and Bits.

Drill Chucks—See Chucks.

Dripping Pans—

See Pans, Dripping.

Drivers, Screw—

Douglas Mfg. Co. 20¢ to 30¢

Disston's 50%

Buck Bros 30%

Stanley R. & L. Co.'s

No. 64, Varnished Handles 65¢ to 10¢

No. 88 70¢ to 10¢

Sargent & Co.'s

No. 1, Forged Blade 60¢ to 10¢

Nos. 20, 40 and 60 60¢ to 10¢

P. S. & W. 70%

Knapp & Cowles

No. 1 60¢ to 20¢

No. 2 60¢ to 10¢

No. 3 60¢ to 10¢

Nos. 4 and 00, Acme and Ideal 60¢ to 10¢

Stearns' 25¢ to 10¢

Gay & Parsons 35%

Champion 25¢ to 10¢

Clark's Pat. 30¢ to 33¢

Elmer's Socket and Ratchet 25¢ to 10¢

Allard's Spiral, new list 25%

Kolb's Common Sense, # doz., \$6.00 25¢ to 10¢

Syracuse Screw-Drive Bits 50¢ to 75¢

Screw Driver Bits, Parr's, # doz., \$6.25 50¢ to 75¢

Fray's Bol. H. die Sets, No. 3, \$12.00 45%

Cincinnati 25¢ to 10¢

Brace Screw Driver 25¢ to 10¢

Buck Bros' Screw Driver Bits, # doz., \$2.75 50%

Goodell's Automatic 50%

Mayhew's Black Handle 50%

Mayhew's Monarch 45¢ to 10¢

C. T. Williamson Wire Novelty Co. 50%

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Halters—

Covert's Rope, Jute.....	60&10&10&25
Covert's Rope, 7-18 in., Jute.....	70&25
Covert's Rope, 1/2 in., Hemp.....	50&25
Covert's Adj. Rope Halters.....	40&25
Covert's Hemp Horse and Cattle Tie.....	50&10&25
Covert's Jute Horse Ties.....	70&10&25
Covert's Jute Cattle Ties.....	70&10&25
Covert's Adj. Web Halters.....	35&5&25
Covert's Saddlery Works Halters.....	38&45
Covert's Saddlery Works Horse and Cattle Ties.....	38&45
Covert's Saddlery Works Handy Web Halters.....	33&45

Hammers—

Handled Hammers—	
Maydole's, List Dec. 1, '86.....	25&10&35
Buffalo Hammer Co.....	50&10
Humason & Beckley.....	50&10
Atha Tool Co.....	50&10
Verre.....	40&10
O. Hammond & Son.....	40&10
Fayette R. Plumb.....	40&10
Artisans' Choice, A. E. Nail.....	40&10
Regular Y. & P. A. E. Nail.....	50
Horseshoe Turning Hammers.....	50
Other Hammers.....	50&10
Cheney's Claw.....	40&10
Cheney's Machinist's & Riveting.....	50&5
Magnetic Tack, Nos. 1, 2, 3, \$1.25, 1.50 & 1.75.....	30&10
Nelson Tool Works.....	40&10
Warner & Nobles, new list.....	25&10
Peck, Stow & Wilcox.....	35&40
Sargent's.....	40&40

Heavy Hammers and Sledges—

3 lb and under.....	75&10
5 lb.....	75&10
Over 5 lb.....	85
Wilkinson's Smiths.....	10&11

Handcuffs and Leg Irons—

See Police Goods.

Handles—

Cross-Cut Saw Handles—	
Atkins', new list.....	40
Champion.....	15
Ely's Perfection.....	doz., \$3.00

Iron, Wrought or Cast—

Door or Thumb.....	
Nos.....	0 1 2 3 4
Per doz.....	\$0.90 1.00 1.08 1.35 1.50
Roggin's Latches.....	doz 30&35
Bronze Iron Drop Latches.....	doz 70&75
Jap'd Store Door Handles—Nuts, \$1.82; Plate, \$1.10; no plate, \$0.88.....	net
Barn Door, per doz \$1.40.....	10&10
Chest and Lifting.....	70&70

Wood—

Saw and Plane.....	40&10
Hammer, Hatchet, Axe, &c.....	40&10
Brad Axl.....	gr \$2.00
Hickory Firmer Chisel, ass'd.....	gr \$5.00
Hickory Firmer Chisel, large.....	gr \$5.00
Apple Firmer Chisel, ass'd.....	gr \$5.00
Apple Firmer Chisel, large.....	gr \$5.00
Socket Firmer Chisel, ass'd.....	gr \$3.00
Socket Framing Chisel, ass'd.....	gr \$5.00
J. B. Smith & Co's Pat File.....	50
File, assorted.....	gr 2.75
Auger, assorted.....	gr 7.00
Auger, large.....	30&10
Pat. Auger, Ives.....	set \$1.25
Pat. Auger, Douglass.....	set \$1.25
Pat. Auger, Swan's.....	set \$1.00
Hoe, Rake, Shovel, &c.....	60&60

Hangers—

Barn Door, old patterns.....	70&70
Barn Door, New England.....	70&70
Samson Steel Anti-Friction.....	55
Orleans Steel.....	55
Hamilton Wrought Steel Track.....	60&10
Champion.....	60&10
Climax Anti-Friction.....	55
Zenith for Wood Track.....	55
Sterling.....	60&10
Victor, No. 1, \$15.00; No. 2, \$16.50; No. 3, \$18.00.....	50&25
Kidder's.....	60&10
Boss.....	60&10
Best Anti-Friction.....	60&10
Duplex (Wood Track).....	60&10
Terry's Modern.....	60&10
Terry's Ideal.....	60&10
Terry's Solid.....	60&10
Terry's Shield.....	60&10
Terry's Wrought Single Strap.....	60&10
Oronk's Patent, Steel Covered.....	60&10
Carrier Steel Anti-Friction.....	60&10
Richards.....	80&30
Lane's New Standard.....	50&50
Lane's Standard.....	50&50
Lane's Parlor.....	40
Warner's Pat.....	20&10
Stearns' Anti-Friction.....	20&10
Stearns' Challenge.....	25&10
Cincinnati Nos. 1, \$2.25; 3, \$2.50; 4, \$2.80.....	20&10
Paragon, Nos. 5, 5 1/2, 7 and 8.....	20&10
Crescent.....	60&10
Nickel, Steel, Nos. 0, \$25; 1, \$20; 2, \$15.....	40&10
Chicago Anti-Friction.....	30&10
Star.....	40&10
Barry.....	50
Interstate.....	50&10
Pendulum, Payson's.....	40&10
Moody.....	45
Economy, \$6.00.....	50&10
Perfection.....	50&10
Lundy, Steel Parlor.....	40
Matchless.....	60&10
Magie.....	45&10
Wild West.....	45&10
Moore's Elevator.....	33&45
Moore's Baggage Car Door.....	33&45
Moore's Railroad.....	55

Harness Snaps—See Snaps.**Hatchets—**

American Axe and Tool Co.	
Blood's.....	40 & 10
Hunt's.....	50&25
Hurd's.....	40 & 10
Mann's.....	40 & 10
Peck's.....	40 & 10
Underhill's.....	40 & 10
Buffalo Hammer Co.....	50&25
Fayette R. Plumb.....	50&25
O. Hammond & Son.....	50&25
Kelly's.....	50&25
Sargent's & Co.....	50&25
P. S. & W. Co.....	50&25
Ten Eyck Edge Tool Co.....	10
Collins.....	10
Schulte, Lehnert & Co.....	50&25

Hay and Straw Knives—

See Knives.

Hinges—**Blind Hinges—**

Parker.....	75&25
Butler.....	50
Clark's, Nos. 1, 2, 3, 4, 5, 6, 40 and 50.....	80&80
Clark's Mortise Gravity.....	50
Sargent's, Nos. 1, 3, 5, 11, 12, 13, 75&10	
Reading's Gravity.....	75&10
Shepard's.....	75&10
Noiseless.....	75&10
Niagara.....	80
Buffalo.....	80
Clark's Genuine Pattern.....	80
O. S., Lull & Porter.....	75&10
Acme, Lull & Porter.....	75
Queen City Reversible.....	70&10
Clark's, Lull & Porter, Nos. 0, 1, 1 1/2, 2, 3.....	75&10
Norfolk's Automatic Blind Fittings, No. 2, for Wood, \$9.00; No. 3, for Brick, \$11.50.....	10

Gate Hinges—

Western.....	doz \$4.20, 60&60
N. E.....	doz \$7.80, 60&60
Chicago.....	doz \$5.60, 60&60
Clark's, Nos. 1, 2, 3.....	60&10
N. Y. State.....	doz \$4.90, 60&60
Automatic.....	60&10
Shepard's.....	60&10

Spring Hinges—

Geer's Spring and Blank Butts.....	40
Union Spring Hinge Co's list.....	20
March, 1886.....	20
Barker's Double Acting.....	25
Union Mfg. Co.....	25
Bommer's.....	30
Buckman's.....	15
Samson.....	20
Bardley's Patent Checking.....	15
Acme.....	30
U. S.....	25
Empire and Crown.....	20
Hero and Monarch.....	55
American, Gem and Star.....	20
Oxford.....	60
Royal.....	60
Reliable.....	60
Champion.....	60
No. 10 Matchless.....	60
No. 25 Unbreakable.....	60
J. G. C. Covered.....	gro. \$30, 60&60
Chicago.....	gro. \$13, 60&60
Wiles, No. 1.....	gro. \$16, No. 2.....
Devore, No. 1.....	gro. \$13, 60
Rex.....	gro. \$13, 60
Freeport.....	gro. \$12, 60
New Idea Nos. 1 and 10.....	gross \$13, 60
New Idea Dbl. Acting.....	gross \$15, 60
Ideal No. 3.....	gross \$15, 60
Stearns' Noiseless Floor Hinge.....	set \$6.00, 20&10

Wrought Iron Hinges—

List February 14, 1891.	
Strap and T.....	50&10
Corrugated Strap and T.....	50&10
Screw Hook and Eye.....	6 to 12 in., \$ 1.00
Strap.....	14 to 20 in., \$ 1.25
Screw Hook and Eye.....	22 to 36 in., \$ 1.50
Roller Blind Hinges, Nos. 32 and 34.....	60
Roller Blind Hinges, Nos. 252 and 234.....	55
Roller Plate.....	70&10
Plate Hinges (8, 10 & 12 in.).....	60
"Providence" over 12 in.....	40

Hoes—

Eye—	
D. & H. Scovill.....	20
Lane's Crescent, Planters' Pattern.....	45&55
Lane's Razor Blade, Scovill Pattern.....	30
Maynard, S. & O. Pat.....	45&55
Sandusky Tool Co., S. & O. Pat.....	60&5
Am. Axe and Tool Co., S. & O. Pat.....	60&5
Chattanooga Tool Co., S. & O. Pat.....	60&5
Grub.....	60&10

Hog Rings and Ringers—

See Rings and Ringers.

Hoisting Apparatus—

See Machines, Hoisting.

Hollow-Ware—

See Ware, Hollow.

Holders—

See Bag—

Bit—

Springle's Pat.....	doz \$18.....
Extension.....	40&40
Barber's.....	doz \$15.00.....
Ives.....	doz \$20.00.....
Diagonal.....	doz \$24.00.....
Angular.....	doz \$24.00.....

File and Tool—

Balz Pat.....	doz \$4.00, 25
Nicholson File Holders.....	20

Sash—

Motley's Adj. Sash, Medium Size.....	doz \$1.20, 40
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Hooks—

Cast Iron—	
Bird Cage, Sargent's List.....	60&10
Bird Cage, Reading.....	60&10
Clothes Line, Sargent's List.....	75&75
Clothes Line, Moore's.....	70

Clothes Line, Reading list.

Ceiling, Sargent's list.....	55&10
Harness, Reading list.....	55&10
Coat and Hat, Sargent's list.....	55&10
Coat and Hat, Reading.....	50&10
Coat and Hat, Moore's.....	70

Wrought Iron—

Cotton.....	doz \$1.25
Cotton Pat. (N. Y. Mallet and Handle.....	30
Tassel and Picture T. & S. Mfg. Co.....	50
Wrought Staples, Hooks, &c.....	See Wrought Goods

Wire—

Wire Coat and Hat, Gem, list April, 1886.....	60&60
Wire Coat and Hat, Miles, list April, 1886.....	50&60
Indestructible Coat and Hat.....	45&45
Wire Coat and Hat, Standard.....	60&60
Handy Hat and Coat.....	50&10
Steady Ceiling Hooks.....	50&10
Belt.....	80&15
Atlas, Coat and Hat.....	65
Williams' Bird Cage Hooks, list April, 1892.....	40
Bright Wire Goods—See Wire.....	

Miscellaneous—

Grass, No. 2, \$2.00; No. 3, \$2.10; No. 4, \$2.25.....	doz \$2.25
Nolin's Grass.....	doz \$2.25
Bush.....	55&60
Whimtree-Patent.....	55
Hooks and Eyes—Malleable Iron.....	70&70
Hooks and Eyes—Brass.....	60&10
Fish Hooks, American.....	50
Bench Hooks—See Bench Stops.....	

Horse Nails—See Nails, Horse**Horse Shoes—**

See Shoes, Horse.

Hose, Rubber—

Competition, Fair quality.....	75&75
Competition, Low Grade.....	80&80
Standard.....	70&10
Extra.....	60&10
N. Y. B. & P. Co., Para.....	25&55
N. Y. B. & P. Co., Extra.....	40&50
N. Y. B. & P. Co., Dundee.....	60&60
Cotton Garden, 3/4 in., coupled.....	70
Fair Quality.....	70
Good Quality.....	80

Huskers—

Blair's Adjustable.....	gr \$8.00
Blair's Adjustable Clipper.....	gr 7.00
Hubbard's Solid Steel.....	gr 4.50

Indurated Fiber Ware—

See Ware, Indurated Fiber.

Irons. Sad—

From 4 to 10, at factory.....	\$ 100
Self-Heating.....	\$2.30 to \$2.40
Self-Heating Tailors'.....	doz \$18.00
Mrs. Potts' Sad Irons, per set:	
No. 50.....	60
No. 55.....	60
No. 60.....	60
No. 65.....	60
No. 70.....	60
No. 75.....	60
No. 80.....	60
No. 85.....	60
No. 90.....	60
No. 95.....	60
No. 100.....	60
Ideal Irons, new list.....	50&10
Salamanca Irons.....	25
B. B. Sad Irons.....	30
Chinese Laundry (N. E. Butt Co.).....	15
New England.....	50
Monarch's Troy Pol. Irons.....	25
Sensible, list Jan. 91.....	50&10
Sensible Tailor's Irons.....	33&45
National Self-Heating.....	30

Soldering—

Soldering Coppers.....	gr 19 to 21
Covert's Adjustable, list Jan. 1, 1886.....	35&25
Tinker's Dread.....	doz \$1.75; gro. \$18

Pinking—

Pinking Irons, per doz., 55&60.

Jack Screws—See Screws.**Jacks, Wagon—**

Daisy.....	33&45
Victor.....	33&45
Lockport.....	40

Kettles—

Brass Spin, Plain, list Jan. 1, '91.....	25&55
Brass Spin, Pld W. list Jan. 1, '91.....	20
Stamped Brass Kettles.....	gr 21
Enameled and Tea—See Ware, Hollow.....	

Keys—

Lock, Ass'n list Dec. 30, 1886.....	65&10
Engle, Cabinet, &c.....	33&45
Hotchkiss' Brass Blanks.....	40
Hotchkiss' Copper and Tinned.....	40
Hotchkiss' Pad. and Cab.....	35
Wollensak Tinned.....	50&10

Knife Sharpeners—

See Sharpeners, Knife.

Knives—

Butcher, Shoe, &c.	
Wilson's Pocket Knives, list Dec 8, 1880.....	25
Ames' Butcher Knives.....	25
Foster Bros' Butcher, &c.....	40
Jordan's & Co. Butcher's, list.....	net
Nichols' Butcher Knives.....	40&10
W. W. Wilson, Butcher, 6 in., \$2.00; 7 in., \$2.70; 8 in., \$3.80, &c.....	
Ames' Shoe Knives.....	20
Ames' Bread Knives, per doz \$1.50, 15&20	
Moran's Shoe and Bread.....	20
Hay and Straw—See Hay Knives.....	
Table and Pocket—See Cutlery.....	

Corn—

Bradley's.....	10
Wadsworth's.....	25

Drawing—

Witherby.....	75&75
P. S. & W.....	75&75
Mix.....	75&75
New Haven.....	60&10</

Wittan, Graham & Mathes, list Jan. 1890.....	60&10&10
Plate.....	39&42
Barnes Mfg. Co.....	40&10&10
Yale.....	net prices
Deltz Flat Key.....	36
Romer's Night Latches.....	15
Brooklyn Latches.....	60&10
Warner's Burglar Proof, # doz. \$8.00, 50¢	
Elevator—	
Moore's.....	33&3
Padlocks—	
List June 10, 1891.....	50&2
Norwich Lock Mfg. Co., old list.....	50&2
Yale Lock Mfg. Co.'s.....	net prices
Essex.....	40
Eureka, Eagle Lock Co.....	40&2
Romer's Nos. 0 to 21.....	30
Romer's Scandinavian, & Co., Nos. 100 to 505.....	15
A. E. Deltz.....	40
Champion Padlocks.....	40
Hotchkiss.....	30
Star.....	40&2
Horseshoe.....	# doz \$9.50 50&10
Barnes Mfg. Co.....	40&10
No. 6.....	30
Scandinavian.....	90&40
E. T. Fraim's Keystone Scandinavian, Nos. 119, 120, 130 and 140.....	90&10
Other Nos.....	60
Ames Sword Co. up to No. 150.....	40
Ames Sword Co. No. 150.....	50
Slaymaker, Barry & Co.....	90&5
No. 1010 line.....	50
No. 41 line.....	50
No. 61 line.....	60
No. 21 line.....	80
Sash, &c.—	
Clark's No. 1, 10; No. 2, \$8 gr.....	33&3
Ferguson's.....	33&3
Victor.....	60&10&2
Walker's.....	10
Attwell Mfg. Co.....	25&33
Reading.....	60&10&2
Hammond's Cold Springs.....	40
Common Sense, Jap'd, Cop'd and Br'ed.....	# gr \$4.00
Common Sense, Nickel Plated.....	# gr \$10.00
Universal.....	60
Kempshall's Gravity.....	60
Kempshall's Model.....	60&10&10
Corbin's Daisy, list Feb. 15, 1886.....	70
Payson's Perfect.....	60&10&10
Hugunin's Sash Balances.....	25&5&2
Hugunin's New Sash Locks.....	25&5&2
Ives Patent.....	60&10&2
Fish (Liesche's pat.), No. 100, gr.....	80
No. 105, # gr \$10.....	80
Davis, Bronze, Barnes Mfg. Co.....	60
Champion Safety list January, 1893.....	70&5
Security.....	70
Giant, list Jan., 1892.....	70&5
Wolcott's.....	60&10&5
Monarch.....	50
Lumber Tools—	
See Tools, Lumber.	
Lustro—	
Four-ounce bottles.....	# doz, \$1.75; # gross.....\$17.00
Machines.	
Boring—	
Without Angers. Upright. Angular.	
Douglas.....	\$5.50 \$6.75.....50
Small's, Rice's Pat.....	5.50 6.75 40&10&10
Jennings.....	5.50 6.75 45&10
Other Machines.....	2.35 2.75.....
Phillips' Patent.....	
With Augur.....	7.00 7.50.....
Miller's Falls.....	7.50.....25
Fluting—	
Knox, 4 1/4-inch Rolls.....	\$3.25 each } 35
Knox, 6-inch Rolls.....	\$3.60 each } 35
Eagle, 8 1/4-inch Rolls.....	\$2.15.....35
Eagle, 6 1/4-inch Rolls.....	\$2.35.....35
Crown, 4 1/4 in., \$3.50; 6 in., \$4.00; 8 in. \$4.50 each.....	35
Crown Jewel, 6 in.....	\$3.50 each, 35
American, 5 in., \$3.00; 6 in., \$3.40; 7 in. \$4.50 each.....	35
Domestic Fluter.....	each, \$1.50
Geneva Hand Fluter, White Metal.....	# doz \$12, 25
Crown Hand Fluter, Nos. 1, \$15.00; 2, \$12.50; 3, \$10.00; 4, \$8.25.....	30
Shepard Hand Fluter, No. 85, per doz.....	40
Shepard Hand Fluter, No. 110, # doz.....	40
Shepard Hand Fluter No. 95, # doz.....	40
Combined Fluter and Sad Iron.....	# doz \$15.00.....30
Holsting—	
Anthony Wayne, with Lock Brake.....	20
Moore's Anti-Friction Differential Pulley Block.....	20
Moore's Rope Differential Pulley Block.....	60
Energy Mfg. Co.'s.....	25
See also Blocks.	
Washing—	
Anthony Wayne, # doz, No. 1, \$42; No. 2, \$38; No. 3, \$42.....	
Wayne American.....	# doz \$39.00
Western Star # doz, No. 2, \$38; No. 3 \$39.....	
Wellsell.....	# doz \$54.00
Fair and Square.....	# doz \$42.00
Mallets—	
Hickory.....	20&10&20&10&10
Lignumvite.....	20&10&20&10&10
B. & L. Block Co., Hickory & L. V.....	30&30&10
Mattocks—Regular list.....	
60&10&60&10&5	
Measures—	
standard Fiberware, No. 1, peck; # dozen, \$3.50; 1/2 peck, \$3.00	
Meat Cutters—	
See Cutters, Meat.	
Menders, Harness—	
Per doz.....	\$22.00
Milk Cans—See Cans, Milk.	

Mills—	
Coffee—	
Box and Side, List Jan. 1, 1883, 60&60&5	
Net prices are often made which are lower than above discount.	
American, Enterprise Mfg. Co., list Jan. 17, 1893.....	20
The Swift Lane Bros.....	30
Waddell's New Box Mills, Idea Brand, New List.....	60
Mincing Knives—	
See Knives, Mincing.	
Molasses Gates—	
See Gates, Molasses.	
Money Drawers—	
See Drawers, Money.	
Mowers, Lawn—	
Best Machines: 10-in., \$4; 12-in., \$4.50; 14-in., \$5; 16 in., \$5.50; 18-in., \$6	
Low-Grade Machines.....	
10-in. \$3; 12-in., \$3.25 14-in., \$3.50 each	
Muzzles—	
Safety.....	# doz, \$3.00, 25
Nails.—	
Cut and Wire. See Trade Report.	
Wire Nails, Papered.	
Association list, May 1, 192, 80&10&10&5	
Tack Mfrs.' list.....	
70&5 70&10	
Hungarian, Finishing, Upholsterers', &c. See Tacks.	
Horse—	
Nos. 6 7 8 9 10	
American.....	84 84 84 84 84.....net
Ausable.....	28 26 25 24 23
Clinton, Fin.....	19 17 16 15 14 30&10
Essex.....	28 26 25 24 23
Lyra.....	19 17 16 15 14 40&10
Snowden.....	19 17 16 15 14 40&10
Vulcan.....	23 21 20 19 18.....25
Northwestern.....	25 23 22 21 20
A. C.....	25 23 22 21 20
C. B. K.....	25 23 22 21 20
Maud S.....	25 23 22 21 20
Champlain.....	28 26 25 24 23
Saranac.....	23 21 20 19 18.....40&5
Champion.....	25 23 22 21 20
Capewell.....	19 18 17 16 15.....10&5
Anchor.....	23 21 20 19 18.....35
Western.....	23 21 20 19 18.....50
Empire Bronzed.....	18&14
Picture—	
Brass Head, Sargent's list.....	60&60&10
Brass Head, Combination list.....	50&10
Porcelain Head, Sargent's list.....	50&10
Porcelain Head, Combination list.....	40&10
Niles' Patent.....	40
Nail Pullers—See Pullers, Nail.	
Nail Sets—See Sets, Nail.	
Nut Crackers—	
See Crackers, Nut.	
Nuts—List Dec. 18, 1889.	
Square, Hex.	
Hot Pressed.....	5.80 6.50 off list
Cold Punched.....	5.00 6.10 off list
In packages of 100 lb, add 1-10¢ # doz; net; in packages less than 100 lb, add 1/2¢ # lb, net.	
Oakum—	
Best or Government.....	# lb 64 74 84
U. S. Navy.....	# lb 64 66
Navy.....	# lb 64 66
Oil Tanks—See Tanks, Oil.	
Oilers—	
Zinc and Tin.....	65&10 70&5
Brass and Copper.....	50&10 50&10&5
Malleable, Hammers' Improved, No. 1, \$3.60; No. 2, \$4.00; No. 3, \$4.40 # doz.....	
Malleable, Hammers' Old Pattern, same list.....	10&10&5
Prior's Pat. or "Paragon" Zinc.....	45
Prior's Pat. or "Paragon" Brass.....	50
Olmead's Tin and Zinc.....	60
Olmead's Brass and Copper.....	50
Broughton's Zinc.....	60
Broughton's Brass.....	60
Steel, Draper & Williams.....	50
Openers, Can—	
Messenger's Comet.....	# doz \$3.00, 25
American.....	# gross \$2.75 \$3.00
Duplex.....	# doz \$5. 15&20
Lyman's.....	# doz \$3.75, 20
No. 4, French.....	# doz \$2.25, 55&60
No. 5, Iron Handle.....	# gr \$6.00, 45&50
Eureka.....	# doz \$2.50, 10
Sardine Scissors.....	# doz \$2.75 \$3.00
Star.....	# doz \$2.75
Sprague, No. 1, \$2.00; 2, \$2.25; 3, \$2.50.....	60&70
Excelsior, No. 1 \$2.60; No. 2, \$1.50.....	40
World's Best # gross, No. 1, \$12.00; No. 2, \$24.00; No. 3, \$36.00.....	50&10
Universal, # doz \$3.00.....	55&55
Domestic, # doz \$2.00.....	60
Champion, # doz \$2.00.....	50
Moore's.....	70
Packing, Steam—	
Rubber—	
Standard.....	70 70&10
Extra.....	60 60&5
N. Y. B. & P. Co., Standard.....	50
N. Y. B. & P. Co., Empire.....	60
N. Y. B. & P. Co., Salamander.....	25
Jenkins' Standard, # lb 80¢.....	25&25&5
Miscellaneous—	
American Packing.....	10 11 11 11 11
Russia Packing.....	14 14 14 14 14
Italian Packing.....	13 13 13 13 13
Cotton Packing.....	15 15 15 15 15
Trma.....	7 7 7 7 7
Pails—	
Creamery—	
S. S. & Co.: 18-qt., \$7.00; 20-qt., \$7.25 per doz.....	5

Galvanized—	
Quarts 10 12 14	
Hill's Light Weight, # doz.....	\$2.75 3.00 3.25
Hill's Heavy Weight, # dz.....	3.00 3.25 3.75
Helwig's.....	2.50 2.75 3.00
Sidney, Shepard & Co.....	2.50 2.75 3.00
Iron Clad.....	2.50 2.75 3.00
Fire Buckets.....	2.75 3.25 3.50
Buckets—See Well Buckets.	
Indurated Fiber Ware—25¢	
Star Pails, 12 qt.....	# doz \$4.20
Milk, 14 qt.....	# doz \$5.40
Stable, 14 qt.....	# doz \$6.00
Fire Pails, deep.....	# doz \$4.80
Fire Pails, round bottom.....	# doz \$5.40
Standard Fiber Ware—	
Water Pails, 12 qt., # doz.....	\$3.80 \$4.00
Dairy Pails, 14 qt., # doz.....	4.00 4.60
Fire Pails, No. 1, 12 qt., # doz.....	4.00
Fire Pails, No. 2, 12 qt., # doz.....	4.50
Sugar Pails.....	5.50 6.00
Horse Pails.....	4.50
Buggy Pails.....	3.50
Slop Jars (bal. trap).....	7.50 8.50
Chamber Pails, 14 qt.....	6.00 7.00
Pans—	
Dripping—	
Small sizes.....	# lb 5 5 5
Large sizes.....	# lb 6 6 6
Silver & Co. (Covered).....	40
Fry—	
Standard List:	
No.....	0 1 2 3 4
# doz.....	\$3.00 \$3.75 \$4.25 4.75 \$5.25
No.....	5 6 7 8
# doz.....	\$6.00 \$7.00 \$8.00 \$9.00
Polished, regular goods.....	75 75 75 75
Acme Fry Pans.....	60 60 60 60
Dust—	
Steel Edge, No. 1.....	# doz \$1.75
Roasting and Baking—	
Columbia, S. S. & Co.: Nos. 10, \$2; 20, \$2.25; 30, \$2.50 each.....	60&10
Paper and Cloth—	
Sand and Emery—	
List April 19, 1886.....	50&10 50&10 50&10
Sibley's Emery and Crocus Cloth.....	30
Parers—	
Apple—	
Advance.....	# doz \$4.75
Baldwin.....	# doz 5.25
Bonanza.....	each 5.00
Daisy.....	# doz 4.00
Dandy.....	each 7.50
Eclipse.....	# doz 4.25
Eureka, 1888.....	each 16.00
Family Bay State.....	# doz 12.00
Favorite.....	# doz 5.00
Gold Medal.....	# doz 4.00
Ideal.....	# doz 4.00
Improved Bay State.....	# doz 27.00 30.00
Little Star.....	# doz 4.50
Monarch.....	# doz 13.50
New Lightning.....	# doz 5.50
Orion.....	# doz 4.00
Perfection.....	# doz 4.00
Pomona.....	# doz 4.00
Rocking Table.....	# doz 6.00
Turn Table.....	# doz 4.50
Victor.....	# doz 13.50
Waverly.....	# doz 4.00
White Mountain.....	# doz 4.00
72.....	# doz 4.25
78.....	# doz 7.00
Potato—	
White Mountain.....	# doz \$4.50
Antrim Combination.....	# doz \$5.50
Hoosier.....	# doz \$13.50
Saratoga.....	# doz \$5.50
Pencils—	
Faber's Carpenters'.....	high list 50¢
Faber's Round Gilt.....	# gro \$5.25
Dixon's Lead.....	# gro \$4.50
Dixon's Lumber.....	# gro \$6.75
Dixon's Carpenters'.....	10¢
Pencils, Soapstone—	
See Crayons.	
Pickers, Fruit—	
Prize Fruit Pickers.....	50
Picks—	
Railroad or Adze Eye, 5 to 6, \$12.00; 6 to 7, \$13.00.....	60&10 60&10 60&10
Picture Nails—	
See Nails, Picture.	
Pinking Irons—	
See Irons, Pinking.	
Pins—	
Bow—	
Humason, Beckley & Co.'s.....	60&10
Argent & Co.'s, \$17 and \$18.....	60&10
Peck, Stow & W. Co.....	60&10 50&10 50&10
Curtain—	
Silvered Glass.....	net
White Enamel.....	net
Escutcheon—	
Iron, list Nov. 11, 1885.....	50&10 50&10 50&10
Pipe, Wrought Iron	
List April 13, 1893.	
1 1/4 and under, Plain.....	67 67&10
1 1/4 and under, Galv.....	60 60&10
1 1/2 and over, Plain.....	67 67&10
1 1/2 and over, Galv.....	67 67&10
Boiler Tubes, list Oct. 24, 1892.....	65&10
Casing, list Nov. 16, 1892.....	62 62&10
Inserted Joints Casing, list Nov. 16, 1892.....	47 47&5
Steel Boiler Tubes.....	47 47&5
Cold Drawn Seamless Steel Tubing.....	50
Planes and Plane Irons—	
Wood Planes—	
Molding.....	40 40&10
Bench, First quality.....	45 45&10
Bench, Second quality.....	50 50&10
Bailey's (Stanley R. & L. Co.).....	50&10
Iron Planes—	
Bailey's (Stanley R. & L. Co.).....	50&10
Miscellaneous Planes (Stanley R. & L. Co.).....	25 25&10
Steers' Iron Planes.....	50 50&5
Meriden Mal. Iron Co.'s.....	50 50&5
Davis' Iron Planes.....	50 50&5
Birmingham Plane Co.....	60 60&10
Gage Tool Co.'s Self-Setting.....	20 20&10
Chapin's Iron Planes.....	50 50&5
Sargent's.....	60 60&10
Standard Tool Co.....	50 50&5
Plane Irons—	
Butcher's.....	\$5.00 55.25 to
Bruck Bros.....	50

Auburn Thistle.....	80&10
Ohio.....	80&10
Sandusky.....	80
E. L. J. White.....	80
Stanley R. & L. Co.....	80&10
Plates—	
Felloe.....	# lb 6 60 60
Pilers and Nippers—	
Button's Patent.....	60
Hall's No. 2, 5 in., \$13.50; No. 4, 7 in., \$21.00 # doz.....	40
Humason & Beckley Mfg. Co.....	50&10
Lindsay's Giant.....	80
Gas Pliers.....	60
Gas Pliers, Custar's Nickel Plated.....	60&5
Eureka Pliers and Nippers.....	40
Russell's Parallel.....	25
P. S. & W. Cast Steel.....	50
P. S. & W. Timmers' Cutting Nippers.....	10
Carew's Pat. Wire Cutters.....	30
Morrill's Parallel, # doz, \$12.00.....	80&5
Cronk's 5 in., \$15.00; 10 in.....	80
Cronk's Button Pattern.....	50&10 60&5
Cronk's Carrier Pliers.....	60&60&5
Plumbs and Levels—	
Regular List.....	75&10 75&10 75&10
Stanley's Duplex.....	20&10
Stanley's Handy.....	20&10
Disston's.....	50
Cook's.....	40&10
Pocket Levels.....	70&10 70&10 70&10
Davis Iron Levels.....	40&10
Poachers, Egg—	
Buffalo Steam Egg Poachers, # doz, No. 1, \$6.00; No. 2, \$9.00.....	34
Silver & Co., 6-Ring, # doz, \$4.00; 4-Ring.....	32.00
Pokes, Animal—	
Bishop S. I. X. L.....	# doz \$6.00
Bishop's Monarch.....	# doz \$4.50
Bishop's Pioneer.....	# doz \$4.00
Bishop's American.....	# doz \$3.00
Eagle, Double Stale.....	# doz \$5.75
Eagle, Single Stale.....	# doz \$3.75
Buckeye, Single Stale.....	# doz \$2.75
Bolding.....	# doz \$5.00

Pullers, Nail-

Seranton. # doz., \$18.00, 58¢
 Curtis Hammer. # doz., \$9.00
 Giant, No. 1. # doz., \$15.00, 10¢
 Giant, No. 2. # doz., \$15.00, 10¢
 Pelican. # doz., \$9.00, 25¢
 Eclipse. Each, \$2.00, net
 Economy. # doz., \$9.00

Pulleys-

Hot House, Awning, &c. 60¢@70¢
 Japanned Screw. 60¢@10¢
 Brass Screw. 70¢
 Japanned Side. 60¢@10¢
 Moore's Side, Anti Friction. 50¢
 Moore's Ceiling or End, Anti Friction. 50¢
 Moore's Dumb Waiter, Anti Friction. 50¢
 Moore's Electric Light. 33¢
 Japanned Clothes Line. 60¢@10¢
 Hay Fork, Solid Eye. \$4.00, 5¢
 Hay Fork, "Anti Friction," 5 in. solid. \$4.50
 Hay Fork, "F" Common and Patent. \$4.70
 Bushed. 20¢
 Hay Fork, Tarbox Pat. Iron. 30¢
 Hay Fork, Reed's Self Lubricating. 60¢
 Hay Fork, Moore's Anti Friction 5 in. 40¢
 Wheel. # doz., \$12.00, 45¢
 Shade Rack. 45¢
 Tackle Blocks-See Blocks.
 Shepard's Niagara, No. 25. # doz 23¢ net
 Bash (Anger Mortise). 60¢
 Common Sense. 60¢
 Empire. 60¢
 Ideal, Nos. 2, 4, 10 & 15. } 10¢ less 1¢
 Acme. } doz net.
 Star. }
 On bbl. lots extra 5¢.
 Ideal, Nos. 25 and 55. # doz. 22¢ net.

Pumps-

Clatern, Best Makers. 60¢@80¢
 Pitcher Spout, Best Makers. 87¢@70¢
 Pitcher Spout, Cheaper G'ds. 75¢@10¢

Punches-

Saddler's or Drive, good. # doz., 60¢@5¢
 Bemis & Call Co.'s Cast Steel Drive. 50¢@5¢
 Bemis & Call Co.'s Springfield Socket. 55¢
 Spring, good quality. # doz., \$2.50@2.80
 Spring, Leach's Pat. 50¢@5¢
 Bemis & Call Co.'s Spring. 50¢@5¢
 Bemis & Call Co.'s Check. 55¢
 Solid Timmers, P. S. & W. Co., # doz. \$1.44
 Timmers' Hollow Punches, P. S. & W. Co. 20¢@2¢
 Rice Hand Punches. 40¢
 Avery's Revolver. 40¢
 Avery's Sawset and Punch-See Sawsets
 Niagara Hollow Punches. 20¢@2¢
 Niagara Solid Punches. 55¢

Rail-

Sliding Door, Wrt Brass. # doz., 35¢, 40¢
 Sliding Door, Bronzed Wrt Iron. # ft., 7¢, 40¢
 Sliding Door, Iron, Painted. # ft., 4¢, 40¢
 Barn Door, Light. In. # 3 3/4 3/4
 Per 100 feet. \$2.00 2.50 3.10, 10¢
 B. D. for N. E. Hanger. Small. Med. Large. #

Per 100 feet. \$3.15 2.70 3.25 Net
 Terry's Steel Rail. # ft., 40¢
 Victor Track Rail, 7 1/2 # foot. 50¢@2¢
 Carrier, double braced, Steel Rail. # foot. 34¢@4¢
 Lundy Parlor Door, Planed Edge. # ft., 40¢
 Moore's Steel Rail. 25¢@10¢
 Moody Steel Rail # ft., 5¢ 45¢

Rakes-

Cast Steel, Association & d's. 70¢@70¢@5¢
 Cast Steel, outside g'ds. 70¢@70¢@5¢
 Malleable. 70¢@70¢@5¢
 Gibbs' Lawn Rake. # doz., \$4.90
 Gibbs' Canton Lawn Rake. # doz., \$3.75
 Gibbs' Acme Lawn Rake. # doz., \$4.75
 Gibbs' Favorite Lawn Rake. # doz., \$3.90
 Gibbs' Crown Lawn Rake, No. 1. # doz., \$4.90
 Oneida Lawn Rake. # doz., \$5.00
 Fort Madison Prize Bow Brace and 65¢
 Peerless. 65¢
 Fort Madison Steel Tooth Lawn Rake. \$6.00 25¢

Razors-

J. R. Torrey Razor Co. 20¢
 Wostenholm and Butcher, \$10 to 2. 10¢
 Jordan's A.A.I., new list. Net
 Jordan's Old Faithful, new list. Net
 Galvanic. # doz., \$15.00
 Electric Cutlery Co. 50¢
 Campbell Cutlery Co. 50¢

Razor Straps-

See Straps, Razor.

Registers-

Moore's Japanned. 75¢
 Moore's Electroplated. 75¢
 Moore's Bronze Finishes. 70¢
 Moore's Solid Bronze. 40¢
 Moore's Stove Pipe. 33¢

Rings and Ringers-

Bull Rings-
 Union Nut Co. 55¢
 Sargent's. 75¢@10¢
 Hotchkiss' Low Us. 30¢
 Humason, Beckley & Co.'s. 70¢@10¢
 Peak, Stow & W. Co.'s. 50¢@10¢@50¢@10¢
 Ellrich Hdw. Co., White Metal, low list. 50¢@50¢@10¢

Hog-

Top of the Hill Rings. # doz \$2.00
 Top of the Hill Rings. # doz \$1.25
 Hill's Improved Rings. # doz \$1.25
 Hill's Old Style Rings. # doz \$1.25
 Hill's Tongs. # doz \$3.00
 Hill's Rings. # doz bxs \$1.00
 Perfect Rings. # doz bxs \$1.50
 Perfect Rings. # doz \$2.15@2.25
 Blair's Hog Rings. # doz \$2.00
 Blair's Hog Rings. # doz \$2.00
 Champion Rings. # doz \$2.00
 Champion Rings, Double. # doz \$2.00
 Brown's Rings. # doz \$2.25
 Brown's Rings. # doz \$1.15@1.25
 Electric Hog Rings. # doz boxes \$1.50
 Electric Hog Rings. # doz \$2.00
 Major Rings. # doz \$1.25
 Major Rings. # doz \$2.00

Rivets and Burrs-

Norway Iron list Nov. 17, '87. 60¢@10¢
 Second quality. 70¢
 Copper. 60¢@80¢@10¢
 Coppered Iron, Bettina Brand. 50¢@5¢

Rivet Sets-See Sets.**Roasting and Baking Pans-See Pans, Roasting and Baking.****Rods-**

stair, Brass. 25¢@30¢
 stair, Black Walnut. # doz 40¢

Rollers-

Jarn Door, Sargent's list. 60¢@10¢
 Moore's Anti Friction. 55¢
 Union Barn Door Roller. 70¢
 Moore's Barn Door Stay. 50¢
 Thompson Mfg. Co.'s Lawn Rollers. 30¢

Rope-The following prices are f.o.b., New York or factory, and are shaded 1/4¢@1/2¢ on large lots; terms, 1 1/2% for cash.
 Manila, 7-16 in. diam. and larger. # 9¢
 Manila. # in. 10¢
 Manila, 1/4 and 5-16 in. # 10¢
 Manila, Tarred Rope. # 9¢
 Manila, Hay Rope. # 7 1/2¢
 Sisal. # 16 in. and larger. # 7 1/2¢
 Sisal. # 1/4 and 5-16 in. # 8 1/2¢
 Sisal, Hay Rope. # 7 1/2¢
 Sisal, Tarred Rope. # 7 1/2¢
 Sisal, Medium Lath Yarn. # 7 1/2¢
 New Zealand, 7-16 in. # 7 1/2¢
 New Zealand, 1/4 and 5-16 in. # 8 1/2¢
 New Zealand, Hay Rope. # 7 1/2¢
 New Zealand, Tarred Rope. # 7 1/2¢
 Cotton Rope. # 13¢@16¢
 Jute Rope. # 6¢@7¢

Wire-

List February, 1892. All kinds. 45¢

Rules-

Boxwood. 90¢@10¢@80¢@10¢@10¢
 Ivory. 50¢@10¢
 Starrett's Steel Rules and Straight Edges. 25¢@10¢

Sad Irons-See Irons, Sad.**Sand and Emery Paper and Cloth-See Paper and Cloth.****Sash Cord-See Cord, Sash.****Sash Locks-See Locks, Sash.****Sash Weights-See Weights, Sash.****Sausage Stuffers or Fillers-See Stuffers or Fillers, Sausage.****Saws-**

Disston's Circular. 45¢@45¢
 Disston's Cross Cut, list Jan. 1, '93. 40¢@10¢
 Disston's Hand. 25¢
 Woodrough & McParlin. 25¢@10¢
 Hand, Panel and Rip. 25¢@10¢
 Cross Cuts, list Jan. 1, 1893. 45¢@10¢
 Wheeler, Madden & Clemson Mfg. Co. 30¢@10¢
 Hand, Panel and Rip. 30¢@10¢
 Cross Cuts, list Jan. 1, 1893. 45¢@10¢
 Atkins' Circular. 50¢@10¢
 Atkins' Cross Cuts, New List. 40¢
 Atkins' Mulay, Mill and Drag. 50¢@10¢
 Atkins' One-Man Saw. 40¢
 Atkins' Wood Saws. 40¢
 Peace Circular and Mill. 45¢@45¢
 Peace Hand Panel and Rip. 25¢@25¢
 Peace Cross Cuts, list Jan. 1, '93. 45¢@10¢
 Richardson's Circular and Mill. 45¢@10¢
 Richardson's X Cuts, list Jan. 1, '93. 45¢@10¢
 Richardson's Hand, &c. 25¢@25¢
 C. E. Jennings & Co.'s brand. 25¢

Hack Saws-

Griffin's, complete. 40¢@10¢
 Griffin's Hack Saw Blades. 40¢@10¢
 Star Hack Saws and Blades. 25¢
 Eureka and Crescent. 25¢

Scroll-

Lester, complete, \$10.00. 25¢
 Rogers, complete. 25¢
 Barnes' Builders' and Cab Makers. \$15.25¢
 Barnes' Scroll Saw Blades. 35¢

Saw Frames-

See Frames, Saw.

Saw Sets-See Sets, Saw.**Saw Tools-See Tools, Saw.****Scales-**

Hatch, Counter, No. 171, good quality. # doz \$18.00@19.00
 Hatch, Tea, No. 161. # doz \$8.50@7.00
 Union Platform, Plain. \$2.10@2.20
 Union Platform, Striped. \$2.40@2.50
 Chatillon's Grocers' Trip Scales. 50¢
 Chatillon's Eureka. \$2.40@2.50
 Chatillon's Favorite. 25¢
 Family, Turnbills. 30¢@30¢
 Riehle Bros' Platform. 40¢

Scale Beams-

See Beams, Scale.

Scissors, Fluting. 45¢**Scrapers-**

Adjustable Box Scraper (S. R. & L. Co.) \$3.00 30¢@10¢
 Box, 1 Handle. # doz \$2.25@2.50
 Box, 2 Handle. # doz \$3.00@3.25
 DeLance Box and Ship. 20¢@10¢
 Foot. 50¢@10¢@60¢
 Ship, Common. # doz \$3.50 net
 Ship, R. I. Tool Co. 10¢

Screen Window and Door Frames-See Frames**Screw Drivers-**

See Drivers, Screw

Screws-**Bench and Hand-**

Bench, Iron. 55¢@10¢@55¢@10¢
 Bench, Wood, Beech. # doz \$2.25
 Bench, Wood, Hickory. 20¢@10¢
 Hand, Wood. 25¢@10¢@25¢@10¢
 Hand, Grand Rapids, list. 35¢

Coach, Lag and Hand-Rail-

Lag, Blunt Point, list Jan. 1, 1890. 80¢@80¢@10¢
 Coach and Lag, Gimlet Point, list Jan. 1, 1890. 80¢@80¢@5¢
 Hand Rail, Sargent's. 70¢@10¢
 Hand Rail, H. & B. Mfg. Co. 70¢@10¢@75¢
 Hand Rail, Am. Screw Co. 75¢

Jack Screws-

Jack Screws, Millers Falls list. 50¢@50¢@10¢
 Jack Screws, P. S. & W. 35¢
 Jack Screws, Sargent. 70¢
 Jack Screws, Stearns. 40¢@40¢@10¢

Cork-

Humason & Beckley Mfg. Co. 40¢@10¢@50¢
 Williamson's. 33¢@33¢@5¢
 Detroit Cork Screw Co. 33¢@5¢

Machine-

Flat Head Iron. 65¢
 Round Head Iron. 60¢

Wood-

List January 1, 1891.
 Flat Head Iron. 70¢
 Round Head Iron. 65¢
 Flat Head Brass. 70¢
 Round Head Brass. 65¢
 Flat Head Bronze. 70¢
 Round Head, Bronze. 65¢
 Rogers' Drive Screws. 82¢@5¢

Scroll Saws-See Saws, Scroll.**Scythes-**

Grain. 40¢@5¢@40¢@10¢
 Grass. 40¢@10¢@50¢

Scythe Snaths-

See Snaths, Scythe.

Sets-

Awl and Tool-
 Aiken's Sets, Awls and Tools. 60¢@60¢@5¢
 Fray's Ad. Tool Hdl's, Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$9. 45¢
 Millers Falls. Tool Hdl's. 45¢
 Nos. 1, \$12; 2, \$18. 25¢
 Henry's Combination Haft. # doz \$6.50
 Stanley's Excelsior. 30¢@10¢
 No. 1, \$7.50; No. 2, \$4.00; No. 3, \$5.50. 30¢@10¢
 Common Brad Sets. 30¢@10¢
 No. 42, \$10.50; No. 43, \$12.50. 70¢@10¢@5¢

Nail-

Square. # gr. \$1.00@4.25
 Round. # gr. \$3.25
 Buck Bros. 27¢
 Cannon's Diamond Point. # gr. \$12, 20¢

Rivet-

Regular list. 70¢

Saw-

Stillman's Genuine. # doz \$5.00@7.75, 40¢@5¢
 Stillman's Pattern, Hand, # doz \$3.25, 40¢@5¢
 Stillman's Cross Cut, # doz \$2.00, 45¢@50¢
 Morrill's No. 1, \$14.00. 40¢@20¢
 No. 11, \$15.50. 40¢@20¢
 Nos. 3 and 4, Cross Cut, \$22.50. 40¢@20¢
 No. 5, Mill, \$30.00. 40¢@20¢
 No. 10, \$15.00. 40¢@20¢
 Larkin's. No. 1, \$1.15, 15¢@20¢
 Nash's. No. 0, \$8.00. 20¢@10¢@20¢@10¢
 Hammer, Hotchkiss. \$5.50, 10¢
 Hammer, Bemis & Call Co.'s new Pat. 45¢
 Bemis & Call Spring Hammer. 30¢@5¢
 Bemis & Call Co.'s Plate. 20¢
 Bemis & Call Co.'s Cross Cut. 30¢@5¢
 Aiken's Genuine. \$13.00, 55¢@55¢@10¢
 Aiken's Imitation. \$9.00, 55¢@55¢@10¢
 Hart's Pat. Lever. 20¢
 Disston's Star. 25¢
 Leopold. 40¢@10¢@50¢
 Atkin's Lever. # doz No. 1, \$6.00
 Atkin's Criterion. # doz No. 1, \$6.00
 Crosscut (Keller), No. 1, \$15.00, No. 2, \$24.00. 40¢@10¢@50¢
 Avery's Saw Set and Punch. 50¢
 Kohler's Royal. # doz \$7.00
 Kohler's Giant Royal. # doz \$12.00
 Crescent. # doz \$3.00
 Lloyd's Acme. # doz \$15, 40¢@10¢
 Taintor Positive. # doz \$18, 50¢

Sharpeners, Knife-

Larkins'.
 Applewood Handles. # doz. \$8.00, 40¢
 Rosewood or Cocobola. # doz. \$9.00, 40¢

Shaves, Spoke-

Iron. 45¢
 Wood. 30¢
 Bailey's (Stanley R. & L. Co.). 40¢@10¢
 Stearns. 30¢@10¢
 Olinnall. 25¢@10¢
 Goodell's # doz. \$9.00. 25¢

Shears-

American (Cast) Iron. 75¢@10¢@75¢@10¢@5¢
 Barnard's Lamp Trimmers. # doz. \$3.75
 Seymour's, list Dec. 1, 1891. 60¢@10¢@10¢@10¢@5¢
 Heinisch's, list Dec. 1891. 60¢@10¢@10¢@10¢@5¢
 Heinisch's Tailor's Shears. 33¢@5¢
 Cast Steel Trimmers. 80¢@80¢@10¢
 Hatch Cutlery Co. Solid Steel Forged. 60¢
 Acme Cast Shears. 10¢@10¢
 Diamond Cast Shears. 10¢
 Clipper. 10¢@10¢
 Victor Cast Shears. 75¢@10¢@75¢@10¢@5¢
 Howe Bros. & Hulbert, Solid Forged Steel. 40¢
 Hatch Cutlery Co. Solid Steel Forged. 60¢
 Davenport Cutlery Co. 60¢@80¢@10¢
 Claus brand, Japanned. 70¢
 Claus brand, Nickel, same list. 70¢
 Galvanic 3/4 to 9 in. # doz. \$1.00 # inch
 Electric Cutlery Co. Net
 Campbell Cutlery Co., Jap'd. 75¢
 Nickel Plated. 65¢

Timmers' Snips-

Wrt. Handles, Steel Blades. 20¢@20¢@10¢
 Niagara Snips and Shears. 20¢@10¢
 Cast Handles, Laid with Steel. 40¢

Pruning Shears and Hook-

Diaston's Combined Pruning Hook and Saw. # doz. \$18.00, 20¢@10¢
 Diaston's Pruning Hook. # doz. \$12.00, 20¢@10¢
 E. S. Lee & Co.'s Pruning Tools. 50¢@10¢@70¢
 Pruning Shears, Henry's Pat. # doz. \$3.75@5¢
 Henry's Pruning Shears. # doz. \$4.25, 40¢@5¢
 Wheeler, M. & C. Co., Combination. # doz \$12.00
 Dunlap's Saw and Chisel. # doz \$8.50, 30¢
 J. Mallinson & Co., No. 1, \$5.25; No. 2, \$7.25
 P. S. & W. Co. 40¢
 Levin Pruner No. 1, \$15.00 # doz. 40¢@5¢
 Levin Pruner No. 2, \$21.00 # doz. 40¢@5¢

Timmers', &c.-

Shears and Snips (P. S. & W.). 20¢@25¢
 Snips, J. Mallinson & Co. 33¢@5¢

Sheaves-

Sliding Door-
 M. W. Co., list July, 1888. 50¢@10¢@60¢@5¢
 R. E., list Dec. 18, 1885. 55¢@20¢
 Corbin's. 60¢@10¢@5¢
 Patent Roller. 20¢@10¢
 Patent Roller, Hatfield's. 15¢
 Russell's Anti Friction, list Dec. 18, 1885. 60¢@5¢
 Moore's Anti Friction. 50¢

Sliding Shutter-

R. E., list Dec. 18, 1885. 60¢@10¢@5¢
 Sargent's list. 70¢
 Reading list. 60¢@10¢@10¢

Shells-

First quality 4, 8, 10 and 12 gauge. 25¢@10¢@35¢
 First quality Rival, Club and Climax brands, 14, 16 and 20 gauge (\$7.50 list). 20¢@10¢@5¢
 Prize. 40¢@30¢
 Star, Club, Rival and Climax Brands. 35¢@10¢@5¢
 Smokeless brand, 12, 10, 16 gauge. 35¢@10¢@5¢
 Trap brand, 12 and 10 gauge. 35¢@10¢@5¢
 Selbold's Comb. Shot Shells. 15¢@2¢
 Brass Shot Shells, 1st quality. 60¢@5¢
 Brass Shot Shells, Club, Rival, Climax. 65¢@5¢

Shells, Loaded-

Standard list, July 19, 1890. 40¢@10¢@40¢@10¢@10¢@5¢

Ship Tools-

L. & I. J. White. 20¢@5¢

Shoes, Horse, Mule, &c.-Horse-

Burden's, Perkins', Phoenix, Standard. Diamond State, Bryden's Boss and Crescent, at factory. \$4.00
 Bryden's Frog Pressure, at factory. \$5.00

Mule-

Add 1¢ per keg to above prices.

Ox Wrought-

Ton lots. # doz 9¢

Snaps, Harness, &c.

Anchor (T. & S. Mfg. Co.)	55¢
Fitch's (Bristol)	50¢10¢
Hutchins	10¢
Andrews	50¢
Sargent's Patent Guarded	70¢10¢10¢
Gorman, new list	40¢10¢
Covert	50¢10¢5¢2¢
Covert, New Patent	50¢10¢5¢2¢
Covert, New R. E.	60¢10¢5¢2¢
Covered Spring	60¢10¢10¢
Covert's Saddlery Works' Triumf	70¢10¢
John Fritz Snares	75¢75¢5¢
Kelley & Woolworth's Steel Harness	50¢10¢60¢

Snaths

Scythe	50¢2¢50¢5¢2¢
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Soldering IronsSee *Irons, Soldering*.**Spittoons, Cuspidors, &c.****Standard Fiberware**

Cuspidors, 8 1/2-inch, # doz., No. 5, \$8; No. 52, \$9	
Spittoons, Daisy, 8-inch, No. 1, 4; 10 and 11 inch, \$6.	

Spoke ShavesSee *Shaves, Spoke*.**Spoke Trimmers**See *Trimmers, Spoke*.**Spoons and Forks****Tinned Iron**

Basting, Cen. Stamp, Co.'s list	70¢10¢
Solid Table and Tea, Cen. Stamp, Co.	70¢10¢
Butter, S. S. & Co.	33¢5¢2¢

Silver Plated

4 months or 5% cash 30 days:	
Gerden Brit. Co. Rogers	40¢15¢
O. Rogers & Bros.	40¢15¢
Rogers & Bros.	40¢15¢
Reed & Barton	40¢15¢
Wm. Rogers Mfg. Co.	40, 15¢5¢
Simpson, Hall, Miller & Co.	40, 15¢5¢
Holmes & Edwards Silver Co.	40, 15¢5¢
L. Boardman & Son	50¢12¢5¢

Miscellaneous

No. 67 Mexican Silver	50¢10¢5¢
No. 80 Silver Metal	50¢10¢5¢
No. 24 German Silver	50¢10¢5¢
No. 50 Nickel Silver	50¢5¢
No. 49 Nickel Silver	50¢10¢5¢
Wm. Rogers Mfg. Co.	50¢10¢8¢
Rogers' Silver Metal	50¢10¢8¢
18% Rogers' German Silver	50¢10¢8¢
22% Rogers' Nickel Silver	50¢10¢8¢
German Silver, Hall & Elton	50¢5¢ cash
Nickel Silver	50¢5¢10¢10¢5¢ cash
Britannia	60¢10¢5¢
Boardman's Nickel Silver, list July 1, 1891	60¢7¢5¢5¢
Boardman's Britannia Spoons, list July 1, 1891	60¢5¢ cash

Springs

Torrey's Rod, 39 in. # doz \$1.20 @ 1.2	
Warner's No. 1, # doz \$1.50 @ 1.2	
\$3.40 @ 1.2	
Gem (Coll), list April 19, 1888	20¢
Star (Coll), list April 19, 1888	20¢10¢
Victor (Coll)	60¢10¢10¢10¢5¢
Champion (Coll)	60¢10¢10¢10¢10¢
Cowell's No. 1, # doz \$1.00 @ 1.2	
\$1.50 @ 1.2	
Rubber, complete # doz \$4.50 @ 1.2	
Hercules	50¢50¢10¢
Patent	39¢5¢

Carriage, Wagon, &c.

Elliptic, Concord, Platform and Half	
Scroll	
60¢10¢60¢10¢10¢10¢ or net prices	
Cliff's Bolster Springs	25¢

Squares

Steel and Iron	80¢10¢10¢80¢25¢
Nickel-Plated	
Any Square and T Bevels	60¢10¢10¢
Diston's Try Square and T Bevels	50¢
Winterbottom's Try and Miter	30¢10¢
Starrett's Micrometer Caliper Squares	25¢
Avery's Flush Bevel Squares	40¢
Avery's Bevel Protractor	50¢

Squeezers

Fodder	
Blair's	# doz \$2.00
Blair's "Climax"	# doz \$1.25

Lemon

oreolain Lined, No. 1	# doz \$6.00
Wood, No. 2	# doz \$3.00, 35¢
Wood, Common	# doz \$7.00, 1.2
Danlap's Improved	# doz \$3.75, 20¢
Bamms, No. 1, \$5.00; No. 2, \$9; 1.2	
113 # doz	25¢10¢
Jennings' Star	# doz \$2.50
The Boss	# doz \$2.50
Dean's, Nos. 1, # doz \$6.50; 2, \$3.50; 3, \$1.90; Queen, \$2.50	
Little Giant	50¢50¢8¢
Kings	40¢5¢
Hutchins Straight Flash	# doz \$12.00
Silver & Co., Glass	# gro. \$9.00

Standard Fiber WareSee *Ware, Standard Fiber*.**Staples**

Barbed Blind, 1/2 in. and larger, # 7 1/2 @ 7 1/2	
Barbed Blind, 3/4 in. # 8 @ 8 1/2	
Fence Staples, Galvanized	Same price as Barbed
Fence Staples Plain	See <i>Trd. Rod</i>
Grand Crossing Tack Co.'s list	75¢10¢

Steelyards**Stocks and Dies**

Blacksmith's	
Waterford Goods	35¢
Butterfield's Goods	35¢
Lightning Screw Plate	25¢30¢
Beece's New Screw Plates	25¢30¢
Reversible Ratchet	30¢
Gardner	25¢
Green River	25¢30¢

Stops, Bench

Morrill's, # doz, Nos. 1, \$9.50; 2, \$12.00	
Hutchins	# doz \$5, 10¢10¢10¢
Watson's, No. 1	# No. 2, \$9, 25¢10¢5¢

McGill's, # doz \$3	10¢
Cincinnati	25¢10¢
Terrell's Nos. 1 and 2, # doz, \$3; No. 3, \$3.60	30¢
Millers Falls	25¢
Stearns	20¢10¢

Stone**Stones, Grind—See Grindstones.****Scythe Stones**

Pike Mfg. Co., list April, 1892	33¢5¢
Cleveland Stone Co., list Nov. 1892	33¢5¢

Oil Stones, &c.

Pike Mfg. Co.	
Hindostan No. 1, # D. 8	8¢
Sand Stone	5¢
Turkey Oil Stone, 4 to 8	40¢40¢
In	80¢
Turkey Slips	\$2.00
Lily White Washita	60¢
Rosy Red Washita	60¢
Washita Stone, Extra	60¢
Washita Stone, No. 1	40¢
Washita Stone, No. 2	30¢
Lily White Slips	90¢
Rosy Red Slips	90¢
Washita Slips, Extra	80¢
Washita Stone, No. 1	70¢
Arkansas Stone, No. 1, 5 to 5 1/2 in.	\$2.30
Arkansas Stone, No. 1 1/2 to 8 in.	\$3.50
Lake Superior	# D 13¢
Lake Superior Slips	# D 20¢

Stove Polish**Stretchers, Carpet**

Cast Iron, Steel Points	# doz \$2.2
Socket	# doz \$1.75
Bullard's	25¢25¢10¢

Strops, Razor

Genuine Emerson	60¢60¢5¢
Imitation	# doz \$2.00, 20¢10¢5¢
Torrey's	# doz \$2.00
Badger's Belt and Com.	# doz \$2.00
Lamont Combination	# doz \$4.00
Jordan's Pat. Padded, list Nov. 1, '89, 50¢	
Electric Cutlery Co.	Net
Campbell Cutlery Co.	Net

Stuffer, Sausage

Miles' Challenge, # doz \$20	50¢50¢5¢
Perry	# doz, No. 1, \$15.00; No. 0, \$21.00
Draw Cut No. 4, each \$30.00	20¢
Enterprise Mfg. Co., list Jan 17, '93	25¢
Silver's	40¢10¢

Sweepers, Carpet and Lawn Carpet

Bissell No. 5	# doz \$17.00
Bissell No. 8	# doz \$20.00
Bissell, Grand	# doz \$36.00
Standard	# doz \$24.00
Domestic	# doz \$21.00
Domestic, 2	# doz \$22.00
Grand Rapids	# doz \$24.00
Crown Jewel, No. 1, \$18.00; No. 2, \$19.00; No. 3, \$20.00	
Magie	# doz \$15.00
Improved Parlor Queen	# doz \$27.00
Nikeled	# doz \$24.00
Japanese	# doz \$22.00
Expositor	# doz \$18.00
Garland	# doz \$24.00
Parlor Queen	# doz \$24.00
Housewife's Delight	# doz \$15.00
Ladies' Friend	# doz \$15.00
Ladies' Friend No. 2	# doz \$18.00
Our Leader	# doz \$19.00
Triumph	# doz \$20.00
Goshen	# doz \$21.00
Supreme	# doz \$22.00
Easy	# doz \$22.00
Gilt Edge	# doz \$28.00
Imperial	# doz \$28.00
Grand Republic	# doz \$30.00
Banner	# doz \$22.00
The Star	# doz \$21.00
Reliable	# doz \$22.00
The Rapid	# doz \$27.00
Our Own	# doz \$27.00
Model	# doz \$27.00
Goshen Sweeper Company, Grand Rapids, Mich., make the following rebates:	
5 dozen in 6 months	# doz \$1.00
10 dozen in 6 months	# doz \$2.00
25 dozen in 6 months	# doz \$3.00
Exception L.F., when 10 dozen price is \$13.50, and 25 dozen \$13.00.	

Lawn**Swings****Tacks, Brads &c.**

List October 19, 1889. Old established straight weights. Short weight goods are sold at lower prices.	
Carpet Tacks	
American, Blued	68¢5¢
American, Tinned	70¢
Steel, Bright and Blued	68¢5¢
Steel, Tinned and Coppered	70¢
Swedes Iron, Blued	72¢5¢
Swedes Iron, Tinned	75¢
American Iron Tacks, Domestic	68¢5¢
Swedes Iron Tacks	68¢5¢
S. S., Tinned	70¢
Lanc, Blued	55¢
Lanc, Tinned	60¢
Gimp and Lace Tacks	
S. S., Blued	62¢5¢
S. S., Tinned	65¢5¢
Lanc, Blued	60¢
Lanc, Tinned	60¢
Basket and Trimmers' Tacks	
Lanc	52¢5¢
S. S.	55¢
Hungarian Nails	55¢
Common and Patent Brads	55¢
Leathered Tacks	10¢
Brush Tacks, S. S.	30¢
Looking Glass Tacks, S. S.	35¢
Picture-Frame Points, S. S.	35¢
Finishing Nails	60¢
Trunk and Clout Nails	
Tinned or Coppered	85¢
Basket Nails	60¢
Chair Nails	52¢5¢
Cigar Box Nails	45¢
Tim Capped Nails	50¢

Miscellaneous

Double Point	90¢40¢10¢
Wire Carpet Nail	60¢10¢
Claw Handle Carpet	# gross \$4.00
Bonnie Blue	# box 1.50

Bill Nye Brad Box	4 00
Parisian Gilt Nails, cartoon	50
Home Tacks, No. 50 # case (12 cartons), \$36.00; No. 100, # case (12 cartons), \$72.00	
Home Nails, No. 200, # case (12 cartons), \$30.00; No. 400, # case (12 cartons), \$60.00	
Upholsterers' Nails	50¢10¢

Wire Brads and Nails

Steel-Wire Brads, R. & E. Mfg. Co.'s list	50¢10¢
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Tanks, Oil

Emerald, S. S. & Co.: 30-gal. \$3.75; 60-gal. \$11 each	50¢10¢5¢
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Tapes, Measuring

American	40¢40¢5¢
Spring	25¢30¢
Chesterman's, Regular list	25¢30¢

Thermometers

Tin Case	80¢80¢10¢
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Thimble Skeins—See Skeins.**Ties, Bale—Steel.**

Standard Wire, list	50¢10¢5¢
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Tinners' Shears, &c.See *Shears, Tinners' &c.***Tinware**

Stamped, Japanned and Piced, list Jan 20, 1887	70¢10¢70¢25¢
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Tire Benders, Upsetters, &c.—See Benders and Upsetters.**Tools—Coopers'**

Bradley's	20¢
Barton's	20¢20¢5¢
L. & J. White	20¢5¢
Beatty's	25¢
Sandusky Tool Co.	30¢30¢5¢
Shaves Cincinnati Tool Co.	20¢

Lumber

Ring Peavies, "Blue Line"	# doz \$20.00
Ring Peavies, Common	# doz \$13.00
Steel Socket Peavies	# doz \$21.00
Mall. Iron Socket Peavies	# doz \$18.00
Cant Hooks, "Blue Line"	# doz \$16.00
Cant Hooks, Common Finish	# doz \$14.00
Cant Hooks, Mall. Socket Clasp, "Blue Line" Finish	\$16.00
Cant Hooks, Mall. Socket Clasp, Common Finish	\$14.50
Cant Hooks, Clip Clasp, "Blue Line" Finish	# doz \$14.00
Cant Hooks, Clip Clasp, Common Finish	# doz \$12.00
Hand Spikes	# doz 6 ft., \$15.00; 8 ft., \$17.00; 10 ft., \$18.00; 12 ft., \$19.00; 14 ft., \$20.00; 16 ft., \$21.00; 18 ft., \$22.00
Pike Poles, Pike & Hook	# doz, 12 ft., \$11.50; 14 ft., \$12.50; 16 ft., \$13.50; 18 ft., \$14.50; 20 ft., \$15.50; 22 ft., \$16.50
Pike Poles, Pike only	# doz, 12 ft., \$10.00; 14 ft., \$11.00; 16 ft., \$12.00; 18 ft., \$13.00; 20 ft., \$14.00
Pike Poles, not ironed	# doz, 12 ft., \$8.00; 14 ft., \$8.50; 16 ft., \$9.00; 18 ft., \$9.50; 20 ft., \$10.00
Setting Poles	# doz, 12 ft., \$14.00; 14 ft., \$15.00; 16 ft., \$16.00
Swamp Hooks	# doz \$13.00

Saw

Atkins', new list	40¢
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Transom LiftersSee *Lifters, Transom*.**Traps—Game**

Newhouse	40¢40¢5¢
Onella Farnen	70¢10¢
Game, Blake's Patent	40¢10¢5¢

Mouse and Rat

Mouse Wood, Choker	# doz holes, 9@10¢
Mouse, Round Wire	# doz \$1.50 10¢
Mouse, Cage, Wire	# doz \$2.50 10¢
Mouse, Catch-em-alive	# doz \$2.50 15¢
Mouse, Catana	# doz \$2.00 \$1.00
Rat, Decoy	# gr \$10.00 10¢
Ideal	# gr \$10.00
Cyclone	# gr \$5.25
Hutchins Metallic Mouse, 5-hole traps	# doz, 75¢; in full cases, # doz \$6.00 \$5¢
Hutchins Imp. Rat Killer	# gro \$18.50
Hutchins New Rat Killer	# gro \$18.50
Schuyler's Rat Killer	# gro \$15.00
Dandy	# doz. \$1.75
Waddell's Go Bang	# gro. \$12.50

Fly

Harper, Champion or Paragon	
# doz. \$1.75; # gro. \$15.50	

Triers

Butter and Cheese	25¢
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Trimmers, Spoke

Bonney's	# doz \$10.00, 50¢
Stearns	20¢10¢
Ives, No. 1, \$15.00; No. 2, \$12.00 # doz	
65¢10¢	
Douglas	# doz \$9.00, 20¢
Cincinnati	25¢

Trowels

Lothrop's Brick and Plastering	20¢10¢5¢35¢
Reed's Brick and Plastering	15¢
Diston's Brk and Plastering	25¢
Peace's Plastering	25¢25¢5¢
Clement & Maynard's	20¢20¢5¢
Rose's Brick	15¢20¢
Brade's Brick	25¢
Worral's Brick and Plastering	20¢
Garden	10¢
Cleves' Angle Trowel	# gro. No. 1, \$3.00; No. 2, \$3.00; No. 3, \$15. net @ 10¢

Trucks, Warehouse, &c.

B. & L. Block Co.'s list	40¢
Thompson Mfg. Co.	40¢
Barnes' Barrel Trucks	40¢

Tubes, BoilerSee *Pipe*.

Whips

American Whip Co.: Length.	4 1/2	5	6	6 1/2	7	7 1/2	8 ft.
X. L. Whalbone Driving	\$18.00	20.00	22.00	24.00	27.00	30.00	33.00
Burks, Two-thirds Whalbone	15.00	16.50	18.00	20.00			
Bull Bone, Half-length Whalbone			11.00	12.00	13.00	15.00	
American Standard	8.00	8.50	9.50	10.50	12.00	13.50	15.00
True Grip, Raw Hide Center	6.00	6.00	6.50	7.00	7.50	9.00	
New Name, Stocked Java, Black and Wine Colors				6.00			
Americus, 93 Pen Whip				6.00			
Gents' Light Driving No. 131				6.00			
Gents' Light Driving No. 106				5.00			
Hand-made Stocked Java No. 108			8.75	4.00			
A large variety of cheaper grades							50¢ to \$3.00
Team Whips							\$2.00 to \$7.50
Toy Whips							50¢ to \$1.00
Hardware Assortment, 10/American, 75 Whips for \$50.00.							

Wire and Wire Goods—

Iron—

Market,

Br. & Ann. Nos. 0 to 18	75¢ to 10¢	75¢ to 10¢	Extra 5¢ to 10% often given and net prices often made on large lots.
Cop'd, Nos. 0 to 18	75¢ to 10¢	75¢ to 10¢	
Galv., Nos. 0 to 18	75¢ to 10¢	75¢ to 10¢	
Tin'd, Tin'd list, Nos. 0 to 18	75¢ to 10¢	75¢ to 10¢	

Stones, Br. and Ann'd, Nos. 16 to 18	30¢	Extra 10% often given.
Bright and Ann'd, Nos. 19 to 26	30¢ to 25¢	
Br. and Ann'd, Nos. 27 to 36	25¢ to 20¢	
Tinned Broom Wire, 18 to 21	45¢	
Galvanized Fence	75¢ to 10¢	
Brass, list Jan. 18, 1894	40¢ to 25¢	
Copper, list Jan. 18, 1894	40¢ to 25¢	
Annealed Wire on Spools	60¢ to 25¢	
Mallin's Annealed & Tin'd on Spools	60¢ to 25¢	
Mallin's Brass and Cop. on Spools	50¢ to 25¢	

Ossawan Mills, An'd and Tinned on Spools.....60¢ to 10¢
 Ossawan Mills, Brass and Copper on Spools.....50¢ to 10¢
 Tate's Spooled, Tin'd & Annealed.....60¢ to 10¢
 Tate's Spooled Cop. and Brass.....50¢ to 10¢
 Cast Steel Wire.....50¢ to 10¢
 Stub's Steel Wire.....\$5.00 to 2, 30¢
 Steel Music Wire, 12 to 30, imported.....5¢ to 70¢

Wire Clothes Line, see Lines.
 Wire Picture Cord, see Cord.

Bright Wire Goods—

Standard list.....85¢ to 10¢

Wire Cloth and Netting—

Painted Screen Cloth \$100 ft. \$1.75 to \$2.00
 Galvanized Wire Netting.....75¢ to 10¢

Wire Barb—

See Trade Report.

Wire Rope—See Rope, Wire.

Wrenches—

American Adjustable	40¢
Baxter's Adjustable "S"	40¢ to 50¢
Baxter's Diagonal	50¢ to 10¢
Cox's "Mechanics"	50¢ to 10¢
Girard Standard	65¢ to 10¢
Lamson & Sessions' Engineers'	60¢ to 10¢
Lamson & Sessions' Standard	70¢ to 10¢
P. S. & W. Agricultural	75¢ to 10¢
Lamson & Sessions' Agric'l.	75¢ to 10¢
W. & B. Diamond	75¢ to 10¢

Bemis & Call's:

Pat. Combination Bright	40¢ to 50¢
Pat. Combination Black	40¢ to 10¢
Merrick's Pattern	45¢
Briggs' Pattern	30¢ to 10¢
Cylinder or Gas Pipe	45¢ to 50¢
No. 3 Pipe	55¢
Alken's Pocket (Bright)	\$5.00, 50¢ to 10¢
The Favorite Pocket	\$4.00, 40¢
Webster's Pat. Combination	30¢
Boardman's	35¢ to 10¢
Always Ready	35¢ to 10¢
Alligator	50¢
Donohue's Engineer	30¢ to 10¢
Eagle	50¢ to 10¢
Acme, Bright	60¢ to 10¢
Acme, Nickel	40¢ to 10¢
Hercules	70¢ to 10¢
Diamond Steel	55¢ to 10¢
Cincinnati Brace Wrenches	35¢ to 10¢
Taft's Vise Wrench	55¢ to 10¢

Wringers, Clothes—

Am. Wringer Co.'s list, Jan. 2, '93	25¢ cash
Colby Wringer Co., list Sept. 1, '91	25¢ cash
Lovell Mfg. Co., list Jan. 1, 1892	25¢ cash
Peerless Mfg. Co., list Feb. 1, 1892	25¢ cash
National Wringer & Mfg. Co., list June 1, 1892	25¢ cash

Wrought Goods—

Staples, Hooks, &c., list March 17, 1892	85¢ to 10¢ to 35¢ to 10¢
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Paints, Oils and Colors.—Wholesale Prices.

Animal and Vegetable Oils—

Linseed, City, raw, per gal.	50
Linseed, City, boiled	53
Linseed, Western, raw	48
Lard, City, Extra Winter	75
Lard, City, Prime	74
Lard, City, Extra No. 1	65
Lard, City, No. 1	55
Lard, Western, prime	73
Cotton-seed, Crude, off	37
Cotton-seed, Crude, off	34
grades	34
Cotton-seed, Summer Yellow, prime	42
Cotton-seed, Summer Yellow, off grades	40
Sperm, Crude	85
Sperm, Natural Spring	85
Sperm, Bleached Spring	85
Sperm, Natural Winter	1.00
Sperm, Bleached Winter	1.05
Whale, Crude	55
Whale, Natural Winter	55
Whale, Bleached Winter	55
Whale, Extra Bleached	59
Sea Elephant, Bleached	59
Winter	59
Menhaden, Crude, Sound	49
Menhaden, Crude, Southern	49
Menhaden, Light Pressed	42
Menhaden, Bleached Winter	45
Menhaden, Extra Bleached	48
Tallow, City, prime	60
Tallow, Western, prime	60
Cocoonut, Ceylon	6
Cocoonut, Cochiti	6
Cod, Domestic	38
Cod, Foreign	44
Red Elaine	44
Red Saponified	54
Bank	40
Straits	41
Olive, Italian, bbls	58
Neatsfoot, prime	75
Palma, prime, Lagos	74

Mineral Oils—

Black, 29 gravity, 25 @ 30 cold test	7
Black, 29 gravity, 15 cold test	7 1/2
Black, 29 gravity, summer	8
Oilinder, light, filtered	14

Cylinder, dark, filtered	10
Paraffine, 23 1/2 @ 24 gravity	11
Paraffine, 25 gravity	10
Paraffine, 28 gravity	7 1/2
Paraffine, red	5 1/2

Paints and Colors—

Barytes, Foreign, 10 ton	\$22.00
Barytes, Amer. floated	\$20.00
Barytes, Amer. No. 1	16.00
Barytes, Amer. No. 2	13.00
Barytes, Amer. No. 3	11.00
Blue, Celestial	6
Blue, Chinese	40
Blue, Prussian	25
Blue, Ultramarine	3
Blue, Spanish	3 1/2
Brown, Vandyke, Amer.	3
Brown, Vandyke, English	6
Carmine, No. 40, in bulk	2.75
Carmine, No. 40, in boxes or barrels	2.85
Carmine, No. 40, in ounce bottles	3.75
Chalk, in bulk	2.40
Chalk, in bbls. \$100	33
China Clay, English	13.00
Cobalt Oxide, prep'd	9.00
Cobalt Oxide, lots 100 lb	1.90
Cobalt Oxide, black	1.96
Green, Paris, in bulk	10
Green, Paris, 170 @ 175 lb kegs	10 1/2
Green, Paris, small kegs	12
Green, Chrome, ordinary	6
Green, Chrome, pure	22
Lead, Eng. B.B. white	8 1/2
Lead, Amn. White, dry or in oil	7
Kegs, lots less than 500 lb	6 1/2
Kegs, lots 500 lb to 5 tons	6 1/2
Kegs, lots 5 tons to 12 tons	6 1/2
Kegs, lots 12 tons and over	6 1/2
Lead, White, in oil, 25 lb tin	1
Lead, White, in oil, 12 1/2 lb tin	1
Lead, White, in oil, 1 to 5 lb assorted tins, add to kee price	1
Lead, Red, bbls. and 1/2 bbls.	6
Lead, Red, kegs	6 1/2
Litharge, kegs	6 1/2
Litharge, bbls. and 1/2 bbls.	6

TERMS, &c.—Lead and Litharge.—On lots of 500 lb or over, 60 days' time or 2 1/2 % discount for cash if paid within 15 days of date of invoice.

Ocher, Rochelle	1.35
Ocher, French Washed	1 1/2
Ocher, German Washed	1 1/2
Ocher, American	1 1/2
Orange Mineral, English	8 1/2
Orange Mineral, French	10
Orange Mineral, German	8 1/2
Orange Mineral, American	8 1/2
Paris White, English Cliff	1.00
Paris White, American	65
Red, Indian, English	6 1/2
Red, Indian, American	2
Red, Turkey	9
Red, Tuscan	9
Red, Venetian, American	100 lb 1.00
Red, Venetian, English	1.20
Sienna, Italian, Burnt and Powd.	4
Sienna, Ital., Burnt Lumps	1 1/2
Sienna, Ital., Raw, Powd.	4 1/2
Sienna, Ital., Raw, Lumps	1 1/2
Sienna, American, Raw	1 1/2
Sienna, American, Burnt and Powd.	1 1/2
Talc, French	1 1/2
Talc, American	1 1/2
Terra Alba, Fr'ch \$100 lb	95
Terra Alba, English	70
Terra Alba, American No. 1	65
Terra Alba, American No. 2	45
Umber, Turkey, Burnt and Powdered	3 1/2
Umber, Turkey, Raw and Powdered	3 1/2
Umber, Turkey, R'w Lumps	2 1/2
Umber, Turkey, R'w Amer.	1 1/2
Yellow, Chrome	10
Vermilion, American Lead	11 1/2
Vermilion, Quicks'g, bulk	57
Vermilion, Quicks'g, bags	58
Vermilion, Quicksilver sm'r	62
Vermilion, English Import	85
Vermilion, Imitation, Eng.	8
Vermilion, Trieste	90
Vermilion, Chinese	92 1/2
Whiting Common, \$100 lb	37 1/2
Whiting Gliders	45

Zinc, American, dry	4 1/2
Zinc, French, Red Seal	7 1/2
Zinc, French, Green Seal	9
Zinc, French, V. M. X	7
Zinc, Antwerp, Red Seal	7 1/2
Zinc, Antwerp, Green Seal	7 1/2
Zinc, German, L. Z. O.	6 1/2
Zinc, V. M. in Poppy Oil, G. Seal, lots of 1 ton and over	10 1/2
lots less than one ton	11
Zinc, V. M. in Poppy Oil, Red Seal	10
lots of 1 ton and over	10 1/2
lots less than 1 ton	10 1/2
Discounts.—French Zinc.—Discounts to buyers of 10 bbl. lots of one or assorted grades, 1 1/2 %; 25 bbls., 2 %; 50 bbls., 4 %. No discount allowed on less than bbl. lots.	

Colors in Oil—

Black, Drop, Frankfurt	25
Black, Drop, English	12
Black, Drop, Domestic	7
Black, Lampblack, Best	20
Black, Lampblack, Common	7
Black, Ivory	8
Blue, Chinese	35
Blue, Prussian	20
Blue, Ultramarine	12
Brown, Vandyke	7
Green, Chrome	8
Green, Paris	16
Sienna, Raw	7
Sienna, Burnt	7
Umber, Raw	7
Umber, Burnt	7

Putty—

In barrels and 1/2 bbls.	.013
In tubs	.013
In tin cans	.013
In bladders	.013

Spirits Turpentine—

In regular bbls.	.29 1/2
In machine bbls.	.30

Glue—

Low Grade	5
Cabinet	13
Medium White	13
Extra White	17
French	10
English	10
Irish	12

THE IRON AGE.

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